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April 2, 2009

**VIA ECFS**

Marlene H. Dortch
Secretary
Federal Communications Commission
The Portals
445 - 12th Street, SW
Washington, DC 20554

Re: Notice of Ex Parte Presentation – GN Docket 09-40

Dear Ms. Dortch:

On behalf of the Fiber-to-the-Home ("FTTH") Council, I met with the following staff of the Commission in regard to the above-referenced docket: Claude Aiken (WCB), Brenda Boykin (WTB), Jennifer McKee (WCB), Kevin Holmes (WTB), and Carol Simpson (PSHSB). The discussion with the staff involved the broadband stimulus programs in the American Recovery and Reinvestment Act of 2009, and, more specifically, for purposes of the Broadband Technologies Opportunities Program, the definitions of broadband service and unserved and underserved areas and the provisions mandating that grantees abide by non-discrimination and interconnection requirements. As a basis for my discussion on these issues, I used the comments and proposed rules filed this past week by the FTTH Council on the broadband stimulus program overseen by the Rural Utilities Service. In these comments and proposed rules, the FTTH Council urged the adoption of the following definitions:

> *Current Generation Broadband Service* means, for a wireline or point-to-point fixed wireless service, providing on an advertised and generally available basis to each customer from the internet access node an information transfer rate equivalent to at least 6 megabits/second from the provider to the customer (downstream) and at least 1.5 megabit/second from the customer to the provider (upstream).

*High Speed Broadband Service* means, for a wireline or point-to-point fixed wireless service, providing on an advertised and generally available basis to each customer from the internet access node an information transfer rate equivalent to at least 25 megabits/second from the provider to the customer (downstream) and at least 6 megabits/second from the customer to the provider (upstream).

*Broadband Service* means Current Generation Broadband Service or High Speed Broadband Transmission Service that enables customers to access the internet at least at the speeds required herein between the customer and the internet access node.

*Unserved Area* means a geographic area described by Census Tracts where more than 20% of the customers (either residential or business or both) to be served by the project currently lack access to a provider of Broadband Service.

*Insufficient Access to High Speed Broadband Service* means more than 33% of the customers (either residential or business or both) to be served by the project currently lack access to a provider of such [high speed] service. (This definition can be seen as a surrogate for underserved areas.)

The FTTH Council also urges the Commission to rely on the existing four principles in the Wireline Broadband Order (FCC 05-15).

I request that this letter, which is being filed electronically, be placed in the file for the above-captioned proceeding.

Sincerely,

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*Counsel for the Fiber-to-the-Home Council*

Attachment: Fiber-to-the-Home Council March 26, 2009 Comments and Rules Regarding the Rural Utilities Service broadband funding from the American Recovery and Reinvestment Act of 2009

cc: C. Aiken
B. Boykin
K. Holmes
J. McKee
C. Simpson

**Before the**
**DEPARTMENT OF AGRICULTURE**
**RURAL UTILITIES SERVICE**
**Washington, DC**

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| **In the Matter of** | ) | |
| | ) | |
| **American Recovery and Reinvestment Act** | ) | **Docket No. 090309298-9299-01** |
| **Broadband Initiatives** | ) | |

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**COMMENTS OF THE FIBER-TO-THE-HOME COUNCIL**
**IN RESPONSE TO REQUEST FOR INFORMATION**

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March 26, 2009

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## EXECUTIVE SUMMARY

The Fiber-to-the-Home Council ("FTTH Council") is a non-profit trade association dedicated to educating the public and government officials about fiber-to-the-home ("FTTH") and to promoting and accelerating FTTH deployment and the resulting quality of life enhancements FTTH networks make possible. It has approximately 250 members, of which almost 150 are rural telephone companies. It thus has an intense interest in assisting the Rural Utilities Service ("RUS") in ensuring the success of the agency's new broadband program in the American Recovery and Reinvestment Act of 2009 ("ARRA').

The new broadband program presents the agency with a great opportunity to ensure that rural areas have access to high-speed broadband infrastructure – the same infrastructure that is being deployed rapidly in urban areas throughout the country. It also presents the agency with a daunting task: awarding $2.5 billion in funding by September 30, 2010. The FTTH Council's comments seek to enable the agency to successfully seize this opportunity and address challenging issues by providing specific proposals – and support for these proposals – on mandates in the new statute. In addition, the Council appends to these comments a complete set of rules to implement its proposals. It welcomes the opportunity to meet with the agency to discuss these more fully. The following summarizes key proposals in the FTTH Council's comments:

1. The purposes of the ARRA are first and foremost to immediately create jobs and economic output and make investments in infrastructure that provide long-term benefits. The agency's broadband program needs to fit within that larger framework and then implement its new directive to provide for the deployment of high-speed broadband service to facilitate rural economic development. The RUS accordingly should give priority to projects that: create the most jobs; can be initiated promptly by an experienced entity; and deploy infrastructure that spurs rural economic development. The deployment of FTTH networks fulfills all of these requirements. In particular, there is substantial evidence showing that FTTH networks generate a significant number of jobs and enable robust long-term economic development.

2. The new broadband program has a specific directive, one that takes precedence over previous agency rules and requirements. Projects must be in areas that are at least 75 percent rural without sufficient access to high speed broadband service to facilitate rural economic development. There are many crucial decisions the agency must make in implementing this directive. The FTTH Council believes there are cogent reasons for the agency to define the term "*high-speed*" as: a wireline or point-to-point fixed wireless service providing an information transfer rate equivalent to at least 25 Mbps downstream and at least 6 Mbps upstream. The Council also urges the agency to define "*without sufficient access to high-speed broadband service*" to mean: more than 33% of the customers (either residential or business or both) to be served by the project currently lack access to a provider of such service.

3. Because funding for the program is far in excess of the usual annual appropriations for the RUS and funding must be awarded by September 30, 2010, the FTTH Council believes that the agency should award only grants – and not loans or loan guarantees – and should adopt a streamlined process for evaluating applications consistent with prudent management.

**Before the**
**DEPARTMENT OF AGRICULTURE**
**RURAL UTILITIES SERVICE**
**Washington, DC**

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| **In the Matter of** | ) | |
| | ) | |
| **American Recovery and Reinvestment Act** | ) | **Docket No. 090309298-9299-01** |
| **Broadband Initiatives** | ) | |

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**COMMENTS OF THE FIBER-TO-THE-HOME COUNCIL**
**IN RESPONSE TO REQUEST FOR INFORMATION**

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The Fiber-to-the-Home Council ("FTTH Council"), through its undersigned counsel, hereby respectfully submits its comments to the Department of Agriculture, Rural Utilities Service ("RUS") in response to the March 12, 2009 *Federal Register* notice for comments ("Notice") to implement the Broadband Initiatives in the American Recovery and Reinvestment Act of 2009 ("ARRA").[1]

The FTTH Council is a non-profit organization established in 2001. Its mission is to educate the public and government officials about fiber-to-the-home ("FTTH") and to promote and accelerate FTTH deployment and the resulting quality of life enhancements FTTH networks make possible. The FTTH Council's members represent all areas of the broadband access industry, including telecommunications, computing, networking,

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1 *In the Matter of the American Recovery and Reinvestment Act of 2009 Broadband Initiatives,* Request for Information, Docket No. 090309298-9299-01, Rel. March 12, 2009.

system integration, engineering, and content-provider companies, as well as traditional service providers, utilities, and municipalities.[2]

## I. Rural Utilities Service High Speed Broadband Program

### A. The New Law Creates Unique Opportunities and Challenges.

The ARRA is a unique and highly specific law, driven by a challenging economic climate and designed to create economic output and jobs as expeditiously as possible. Federal agencies thus need to align their implementation of the legislation with these paramount objectives. Simply because the ARRA has included funding for activities that are somewhat similar to what an agency has undertaken in the past does not mean the agency should go about "business as usual" and just replicate its old practices. Rather, agencies need to develop new implementation schemes that adhere closely to the purposes and text of the ARRA.

The ARRA, in providing $2.5 billion in funding for high speed broadband deployment largely in rural areas, presents the RUS with a daunting task, even though the agency has demonstrated expertise and experience in awarding broadband funding through loans and grants. First, the amount of money that must be awarded is many times larger than the normal annual appropriations for the RUS, yet the agency has only until September 30, 2010 to complete the task. Second, the agency needs to rapidly take the specific text and directives of the ARRA and develop new criteria upon which to

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[2] As of today, the FTTH Council has more than 200 entities as members. A complete list of FTTH Council members can be found on the organization's website, http://www.ftthcouncil.org.

judge applications for funding. While there may be some overlap with the agency's existing broadband programs, the new statute has specific objectives and requirements that take precedence. Finally, the agency must accomplish all of this while continuing to implement its ongoing broadband programs, which just received new appropriations.

Because of these challenges, the FTTH Council believes the RUS needs to deal with the ARRA funding as a "one-shot" emergency program, requiring special procedures and requirements. More specifically, the FTTH Council urges that the RUS:

1. *Use the ARRA funding exclusively for grants.*

In the Notice, the agency notes that it "has struggled to find an effective way to use the agency's current broadband loan program" and "believes that the authority to provide grants" will help it achieve the goals of ensuring broadband access. The FTTH Council strongly agrees with the agency on the value of grants to achieve its aims and believes it should use the ARRA funding exclusively for grants. There are two key reasons that heavily weigh in favor of such an approach. First, grants can be awarded more expeditiously, requiring fewer resources and expenditures by the applicants and the agency. This, of course, is critical given the primary economic aims of the ARRA. In contrast, because the agency incurs the risk of default with a loan, it must engage in substantial, time consuming, and costly due diligence in advance of any award (as well as engaging in strict post-award audits and reporting over the life of the loan). With the strict time limits of the ARRA, the agency does not have the luxury of engaging in such a drawn out process, and a grant process should cost much less for the applicants and the agency. Second, the level of grant funding in the ARRA is already so substantial that it can be used for a large number of awards with significant impact in rural areas. The agency, for instance, could use the funding to award 250 grants at an average of $10

million each. It should be noted that from FY 2003 through FY 2008, for the broadband loan program, the agency made 85 loans worth almost $1.6 billion or approximately $20 million per loan. Thus, while leveraging federal funds through making loans can be advantageous, given the objectives of the ARRA, there is no pressing need to do so here.

2. *Streamline the application process, the program's requirements, and the process for awards and post-award implementation.*

Because there is a need to expedite the processing of applications and initiation and completion of projects, the FTTH Council believes the agency must streamline the application process and remove, or at least limit, requirements that stand in the way of simultaneously engaging in project design, construction, and installation (including design-build or turn-key projects). In effect, the agency needs to create a "fast-track" process from the application stage through service initiation. For example, elaborate market surveys and detailed engineering design, while beneficial under normal circumstances, cannot be seen as consistent with the need to commence and complete projects expeditiously. Nor, is it beneficial that the agency require competitive bidding for the supply of equipment and services post-award. Rather, the agency would improve the quality of grant applications and speed deployments by eliminating this step and permitting applicants to enter into agreements with vendors in advance of filing. Any agreements, of course, would be noted in the application. In general, the agency should rely on such industry-standard practices – such as the use of master contracts, prevailing unit construction prices, and customary unit prices for the area – to expedite construction.

Streamlining the application process and program requirements can be achieved fully consistent with the ARRA's requirement of "prudent management." The agency is familiar with post-award reporting, oversight, and audit requirements, and it should apply

these requirements to the new program. In addition, the FTTH Council believes the agency should require the applicant to contribute at least 20% matching funds to the project.

Of course, there is no reason – nor would it be desirable – for the RUS to reinvent all of its practices and procedures for its ARRA broadband program. Of the two broadband programs overseen by the agency, the FTTH Council believes the closer model for its ARRA broadband program is the Community Connect Broadband Grant program and not the Broadband Loan Program. To that end, it has appended to these comments a set of proposed rules for the agency's implementation of its ARRA broadband program, which are built upon the agency's grant program.[3] Key aspects of these proposed rules are discussed in the following sections. The FTTH Council stands ready to meet with the agency at anytime to elaborate on its proposed rules and their rationale.

### B. Economic Growth and Development and Job Creation Drives the ARRA; Fiber-to-the-Home Deployments Drive Economic Growth and Development and Job Creation.

At the beginning of the ARRA, the purposes and principles of the legislation are clearly enunciated:

- "Preserve and create jobs and promote economic recovery."
- "Invest in…infrastructure that will provide long-term economic benefits."

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[3] The proposed rules address the provision of fixed, and not mobile, broadband service.

- "[Commence] expenditures and activities as quickly as possible consistent with prudent management."[4]

These purposes are later echoed in the legislative language creating the new program for RUS:

- Facilitate rural economic development
- Provide a priority for activities that are "fully funded," "can commence promptly," and "can be completed."[5]

In a real sense, under the ARRA, broadband deployment is first and foremost a means to the end of economic recovery and reinvestment, and only secondarily an end in its own right. The RUS accordingly should give priority to projects that:

- Create the most jobs;
- Can be initiated promptly by an experienced entity; and
- Deploy infrastructure that spurs rural economic development.

There is substantial evidence to support the conclusion that deployment of FTTH infrastructure best fits these objectives for two reasons. First, in terms of immediate jobs and economic output, FTTH deployments are enormous construction projects, involving far more outside plant work than other technologies.[6] This conclusion is supported by a

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4 Public Law 111-5, Section 3 (a)(1), (a)(4), (b).

5 Public Law 111-5, Division A, Title I, *Distance Learning, Telemedicine, and Broadband Program.*

6 This conclusion is supported in the *Conference Report* on H..R 1 (the ARRA) (in the section discussing the NTIA Broadband Technology Opportunities Program, Section 6001), which provides, "The Conferees are also mindful that the construction of broadband facilities capable of delivering next-generation broadband speeds is likely to result in greater job creation and job preservation than projects centered on current-generation broadband speeds."

recent study by the economic consulting firm Empiris, LLC, which was commissioned by the FTTH Council, on the economic effects of tax incentives for the deployment of broadband infrastructure. (A full copy of the report is appended to these comments.) Of particular relevance to the discussion here, the report states:

> [A] majority (54 percent) of capital spending required in outside plant build-out for FTTH is spent on construction. This heavy reliance on construction for FTTH is due in large part to the burying of new infrastructure in the ground...$1 million of investment in FTTH deployment will result in almost 20 jobs, whereas a million dollars of investment in wireless broadband will result in fewer than 15 jobs. This is largely due to our estimate that only 7 percent of wireless broadband capital expenditures go to the construction industry.

In addition to the immediate benefits of creating economic growth and jobs, in terms of economic development, FTTH deployments provide by far the most capabilities (through higher symmetrical bandwidth) for customers to send and receive data and video, and these networks are "future-proof." Once the fiber is installed, upgrading the capabilities of the network is readily accomplished by changing the electronics. In addition, fiber networks are most valuable to businesses, which increasingly demand dedicated amounts of symmetrical bandwidth, and to their employees.[7] As the former Mayor of Ft. Wayne, Indiana, Graham Richard, stated on March 16, 2009, at a meeting of the National League of Cities, "If you don't have [FTTH], [companies] won't invest in your city. [Broadband deployment] is just as important as public safety, water and sewer

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[7] A 2007 survey sponsored by the FTTH Council found that "a substantial portion of Americans who get their home Internet services through direct fiber optic connections are using those services to telecommute an average of one-third of the time or to run their own home-based businesses," See, http://www.ftthcouncil.org/?t=262.

systems."[8] Of course, the RUS is familiar with these benefits, as over one-third of its broadband loans have gone to FTTH projects. Given the new aims of the ARRA's broadband program, one would expect this to increase.

### C. The ARRA Provides a New and Specific Directive for RUS to Implement: Deploy Sufficient High Speed Broadband to Facilitate Rural Economic Development.

The RUS has a lengthy history of seeking to provide access to broadband in rural areas and has created two programs dedicated to achieving that goal. While the ARRA's directive for the agency also involves deployment of broadband infrastructure to rural areas, it is different and takes precedence over prior law and regulation:

> [N]otwithstanding title VI of the Rural Electrification Act of 1936, this amount [$2.5 billion] is available for grants, loans, and loan guarantees for broadband infrastructure in any of the United States: Provided further, That at least 75 percent of the areas to be served by a project receiving funds from such grants, loans, or loan guarantees shall be in a rural area without sufficient access to high speed broadband service to facilitate rural economic development.

In interpreting this directive, the agency needs to adhere closely to the text and give natural meaning to each requirement such that, in the end, the program achieves the fundamental aim of deploying sufficient high speed broadband service to facilitate rural economic development. The FTTH Council believes the following specific interpretations best fit with the rules of statutory interpretation and the intent of the Congress, particularly in light of prior agency regulations and policies:

> 1. *Rural Area* means any geographic area described by Census Tracts[9], as confirmed by the latest decennial census of the Bureau of the Census,

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8 *See TR Daily, Local Involvement Urged in ARRA Grant Program*, March 16, 2009. It should be noted that Mayor Richard stated that job creation was the "number one" benefit from FTTH deployment.

> which is not located within: (1) the boundaries of an Urban Area; or (2) an incorporated city or town with a population of more than 20,000.

This definition follows the agency's proposed regulations for the broadband loan program, which also are reflected in the 2008 Farm Bill provision.[10] It therefore is consistent with the latest consensus definition of federal policymakers.

> 2. *High Speed Broadband Service* means, for a wireline or point-to-point fixed wireless service, providing on an advertised and generally available basis to each customer from the internet access node an information transfer rate equivalent to at least 25 megabits/second from the provider to the customer (downstream) and at least 6 megabits/second from the customer to the provider (upstream).[11]

The legislation's use of the term High Speed Broadband Service, as opposed to simply broadband service, is of particular importance.[12] The agency clearly needs to distinguish from its earlier-used, relatively low transmission speeds and establish a new benchmark. Important policy and economic development concerns are driving this new mandate: Congress wants rural customers to have access to broadband services with the same capabilities as those available to urban customers to facilitate their economic development and enhance the quality of life, and it is clear that many urban customers

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9 The FTTH Council uses Census Tracts to describe geographic areas because they are known and relied upon by the Federal Communications Commission in the Broadband Reporting Form (FCC Form 477), which can serve as a source for the agency to use in confirming information. The FCC Form 477 also segments broadband service into groups (Rate Codes) based on transmission speeds. The FTTH Council references these Rate Codes in these comments.

10 Rural Broadband Access Loans and Loan Guarantees, Proposed Rule, *Federal Register*, Vol. 72, No. 91, rel. May 11, 2007. Public Law 110-246, Sec. 6110.

11 The downstream speed fits within Rate Code 8 of the FCC Form 477, and the upstream speed within Rate Code 6.

12 The 2008 Farm Bill, enacted a short time ago, only used the term, broadband service.

already have access to high-speed broadband and many more will have access over the next few years.

The agency can readily determine the performance characteristics for the high-speed broadband services received by urban customers. Verizon's FiOS network, for instance, today provides a 50 Mbps downstream – 20 Mbps upstream service. This network will pass approximately 18 million households by the end of 2010 – almost 20% of the nation's households.[13] Comcast, the nation's largest cable company, offers its "Extreme 50" service (50 Mbps downstream – 10 Mbps upstream) in select markets, and this service will be provided to approximately 10 million homes soon.[14] Cablevision, another major cable operator, currently offers a 30 Mbps/5 Mbps service.[15] AT&T's U-verse, which will pass approximately 30 million households by the end of 2010, today provides a 18 Mbps/1.5 Mbps service.[16] These performance characteristics are, of course, snapshots of the current market, and, given the previous growth rates, the agency should conclude that even higher-speeds will be available in the next few years – when the networks built by the broadband stimulus grants are completed. The FTTH Council thus believes that the agency should define high-speed broadband service at the very least as 25 Mbps downstream – 6 Mbps upstream.

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13 *See,* http://investor.verizon.com/news/view.aspx?NewsID=925.

14 *See,* http://www.cmcsk.com/phoenix.zhtml?c=118591&p=irol-newsArticle&ID=1215838&highlight=. Comcast's current, general high-speed offering is 16 Mbps/2 Mbps.

15 *See,* http://www.optimum.com/order/boost/.

Additional support reflecting recent Congressional intent can be found in the definition for "advanced broadband service" used in the House version of the NTIA broadband stimulus program in the ARRA – "at least 45 megabits per second downstream and at least 15 megabits per second upstream."[17] While this definition was not included in the final bill, Congress required NTIA to favor applications for grants that offered the "greatest possible broadband speeds."[18] Clearly, Congress understands that higher speeds provide the greatest capabilities for customers – in addition to leading to the greatest benefits in terms of economic growth and job creation. The FTTH Council would welcome the agency's adoption of the definition provided by the House but also believes the definition provided above is sufficient to achieve the ARRA's intent.

Finally, to provide a further benchmark for the definition of high-speed, the agency should note that Tier 3 rural incumbent local exchange carriers, which serve approximately 8 million households, have aggressively deployed FTTH. Three-quarters of these carriers either have started providing FTTH or will initiate deployments in the next several years. Today, over 12% of these rural households are passed by fiber.[19] For the agency to require anything less than FTTH performance capabilities for grant projects would place those areas at an economic disadvantage.

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16 *See*, http://www.att-services.net/att-u-verse/uverse-internet.html.

17 *See*, Section 1002(j), H.R. 629, 111th Congress.

18 *See,* Sec. 6001, *Conference Report* on H.R. 1.

19 *Overview: ILEC vs. Muni-Fiber Builds*, Michael Render, The FTTH Prism, March 2009, p. 15.

> 3. *Insufficient Access to High Speed Broadband Service* means more than 33% of the customers (either residential or business or both) to be served by the project currently lack access to a provider of such service.[20]

As with the discussion on the definition of high-speed in the prior section, the term "without sufficient access" to high-speed broadband service for a rural area should be viewed in light of access in urban areas. Verizon's FiOS service will reach approximately 50% of the carrier's total access lines by the end of 2010, but the "access rate" for urban areas is even greater since this includes lines in rural areas. AT&T's U-verse service will reach approximately the same percentage of the carrier's lines by the end of 2010, but, again, many of these lines are in rural areas. Moreover, as noted above, the growth rate for access to the lines in urban areas will continue to increase.

In addition, the "sufficient access" needs to be read in relation to the phrase that follows, "to facilitate rural economic development." That means "sufficient access" should at the very least require that access be provided to a large enough number of customers, both business and residential, to spur economic development, including such critical activities as distance-learning and telemedicine applications. Based on this concern and on the need to ensure equivalent "sufficient" access to that provided in urban areas, the FTTH Council has proposed a high threshold for determining "sufficient access."

> *4. Facilitate Rural Economic Development* means the deployment of a Broadband System (capable of providing High Speed Broadband Service) to a Community and its customers that can be readily upgraded to provide information transfer rates in excess of those currently provided and at least comparable to those in Urban Areas.

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20 Prior to finding that sufficient access exists, the agency should ensure that any existing provider is viable and that its service is sufficiently substitutable with the Broadband Service proposed in the application.

In the Notice, the agency asks numerous questions about how it should interpret the term "rural economic development." The FTTH Council believes the agency's focus should be on ensuring that rural areas have broadband infrastructure capable of providing High Speed Broadband Services that is equivalent to that provided in urban areas. As noted above, once that infrastructure is in place, it will spur economic development by attracting businesses that require such capabilities and providing customers with the ability to access vital applications.

There is more than ample evidence to support the conclusion that FTTH networks drive economic development, including in rural areas. In one study, a majority of FTTH network operators concluded that these networks attracted new businesses, including in such small towns and rural areas as Bristol, Virginia and Bristol, Tennessee, which successfully attracted Media General, Northrup Grumman, and CGI.[21] A "Fiber User Survey" by Strategic Networks Group of three FTTH communities provides further evidence of the economic impact these networks by finding: there was an "average increase in sales of $21,017 per organization reporting," "average cost savings per organization of $2,951," and a net increase in employment of 10.1%."[22] It is thus not surprising to hear the former mayor of Ft. Wayne state:

> The benefits of a big pipe in a small town are clear. Communities that do not make high-speed broadband services available to residents and

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21 *Municipal Fiber to the Home Deployments: Next Generation Broadband Deployment as a Municipal Utility*, April 2008, pp. 3-4. (Located at: www.ftthcouncil.org)

22 *Fiber User Survey, Uses and Impacts of FTTH in Bristol, Virginia, Strategic Networks Group*, April/May, 2007, p.6. (Located at: www.ftthcouncil.org)

> businesses will lose out in the economic development race...[U]ltimately, these high-speed broadband services will play a large role in keeping small towns not just viable but desirable places to live and work.[23]

*5. Link with Unserved and Underserved Areas*

The agency inquires in the Notice about the existence of any link between the new directive and the terms "unserved" and "underserved" used in the directive for the NTIA program. While coordination between the two new broadband programs is important – and there is an overlap with their objectives since both are part of the ARRA – the legislative language of each is distinct, and it must control. Thus, the service areas in applications to the Agency under the new program are required to be at least 75% rural, but there is no requirement that they be unserved or underserved. The only legislative mandate to the agency regarding unserved areas is that it give a priority to applications also seeking to provide service to the "highest proportion of rural residents that do not have access to broadband service." Of course, it would make most sense for the two agencies to adopt the same definition of an unserved area to ensure there is no overlap in funding and that funding is awarded most efficiently to those areas. The FTTH Council proposes that the following definition be used:

> *Unserved Area* means a geographic area described by Census Tracts where more than 20% of the customers (either residential or business or both) to be served by the project currently lack access to a provider of Broadband Service.[24]

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23 *Broadband Fiber Networks: The 21st Century Crossroads*, Graham Richard, to be published in Broadband Properties magazine in April, 2009.

24 The FTTH Council proposes that *Broadband Service* means Current Generation and High Speed Broadband Services, and *Current Generation Broadband Service* means, for a wireline or point-to-point fixed wireless service, providing on an advertised and generally available basis to each customer from the internet access node an information transfer rate equivalent to at least 6 megabits/second (FCC Rate Code 6) from the provider to the customer (downstream) and at least 1.5

. . .*Continued*

As for underserved areas, despite the agency having no mandate, coordination between the two agencies again is necessary to ensure funding is not awarded for the same service areas.

### D. Statutory Priorities Should be Addressed in the System for Scoring Applications.

In addition to the new directive, the legislation establishes a series of priorities for awarding funding. These priorities are diverse, and, in the case of priorities for competition and unserved areas, mutually exclusive. The FTTH Council believes the agency should account for these priorities in its system for scoring applications, and it proposes the following 100 point system, which also accounts for the critical priorities established in the ARRA and in the directive establishing the new program. More specifically, the largest group of points is awarded for economic growth/development and job creation and then for deploying superior broadband infrastructure which will propel economic development. Additional points are awarded for being in any of the "priority" categories and then for connecting and serving community anchor institutions. The complete methodology for determining the points to be awarded can be found in the proposed rules attached to these comments.

SCORING CRITERIA

- *Jobs Creation* (up to 20 points).
- *Project Feasibility, Initiation, and Completion* (up to 20 points).
  - *Feasibility* (up to 10 points).

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megabit/second (FCC Rate Code 4) from the customer to the provider (upstream). The FTTH Council proposes a different threshold for unserved areas than areas with insufficient access to high-speed broadband to provide a greater incentive to serve customers in unserved areas when deploying projects.

- *Initiation and Completion* (up to 10 points).
- *Project Scope and Cost* (up to 10 points).
- *Infrastructure Capabilities and Long-Term Sustainability* ( up to 20 points)
  - *Broadband Transmission Speed* (15 points).
  - *Long-Term Sustainability* (up to 5 points).
- *Affordability* (5 points)
- *Competition or Unserved Area Preference* (10 points).
- *Rural Utilities Service Borrower's Preference* (10 points).
- *Community institution connectivity and community institution support* (up to 5 points).

## E. Further Comments on the FTTH Council's Proposed Rules.

### 1. Application Periods, Award Deadlines, and Allocating Funds.

As discussed above, the agency's new broadband program has many unique features, including a new directive and priorities and substantial funding that needs to be awarded expeditiously and in full by September 30, 2010. To accommodate all of these features and to give entities the maximum opportunities to file applications that best meet the program's objectives consistent with prudent management, the FTTH Council believes the agency should create three filing windows – with filing dates on July 1, 2009, November 1, 2009, and April 1, 2010 – and seek to issue awards within 90 days of the filing date. The agency should seek to award approximately one-third of the funds in each window but can add any funds not awarded in the first two windows to a subsequent window. All applications should be complete when filed, although the agency may ask for clarifications, and any application that is rejected or denied in the first two windows can be filed in a later window. To assist the agency in ensuring the ARRA's requirements are met, the FTTH Council believes the agency should immediately post applications on its website and accept comments on them for a period of 30 days.

2. **Eligibility for Funding.**

The ARRA does not limit who can apply to receive an award of the agency's broadband funding, and it would be in the best interest of the program for the agency to receive applications from as many credible sources as possible. The agency therefore should adopt the following expansive eligibility requirements:

> To be eligible for a grant under the Program, an applicant shall:
> (a) Be legally organized as an incorporated organization, an Indian tribe or tribal organization, as defined in *25 U.S.C. 450b (b) and (c)*, a state or local unit of government, or other legal entity, including cooperatives or private corporations or limited liability companies organized on a for-profit or not-for-profit basis.
> (b) Have the legal capacity and authority to own and operate facilities to provide Broadband Service as proposed in its application, to enter into contracts and to otherwise comply with applicable federal statutes and regulations.

3. **Project Eligibility and Use of Grant Funds.**

The ARRA's directive for the agency's new broadband program establishes which projects are eligible to receive funds and how those funds are to be used. Because the essence of the ARRA is economic recovery and reinvestment – and the broadband program's directive is driven by existence of insufficient access to High Speed Broadband Service to facilitate rural economic development -- the agency's broadband funding should only fund the construction of infrastructure over which High Speed Broadband Service is offered. By doing so, the agency would be ensuring that these largely rural areas should receive "future-proof" networks to propel their economic growth. As for using grant funding for other purposes, the FTTH Council believes the agency should permit a minor exception to having funding only go to infrastructure deployment and allow grantees to use funding to provide free access for community

anchor institutions and vulnerable populations for a period of two years once service is initiated.

*Project Eligibility*

To be eligible for a grant, the Project shall:
(a) Deploy a Broadband System in a Service Area where at least 75% of the area to be served is a Rural Area without sufficient High Speed Broadband Service to facilitate rural economic development; and
(b) Offer High Speed Broadband Service to customers within the proposed Service Area.

*Use of Grant Funds*

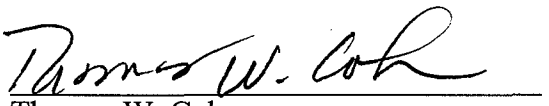
(a) Grant funds may be used to finance:
  (1) The construction, acquisition, or leasing of facilities to deploy a Broadband System to a Service Area and all required facilities needed to offer a High Speed Broadband Service to customers located within such area;
  (2) Access to Broadband Service, including use of end-user equipment and free access to service for a period of two years after service is initiated to the customer, by Community Anchor Institutions;
  (3) Access to Broadband Service, including use of end-user equipment and free access to service for a period of two years after service is initiated too the customer, by low-income, unemployed, aged, and otherwise vulnerable populations; and
  (4) The purchase of land, buildings, or building construction needed to carry out the project.
(b) Operating expenses incurred in providing such service are ineligible for grants, except as provided in subsections (a)2) and (a)(3) of this section.

## II. Conclusion

In these comments, the FTTH Council has sought to provide the RUS with a roadmap, based on the experiences of its members, on how to navigate through the new statutory directive in the ARRA to achieve its objectives. The Council believes that by following this roadmap the agency can seize the tremendous opportunity provided by this new program and provide "future-proof" FTTH infrastructure to a great many areas in

rural America to facilitate their economic development. It stands ready to assist the agency in this challenging undertaking.

Respectfully submitted,



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March 26, 2009


# FIBER-TO-THE-HOME COUNCIL PROPOSED RULES TO IMPLEMENT RURAL UTILITIES SERVICE BROADBAND STIMULUS GRANT PROGRAM

**Submitted to the Department of Agriculture, Rural Utilities Service on March 26, 2009 in Docket No. 090309298-9299-01**

**FIBER-TO-THE-HOME COUNCIL**
**PROPOSED RULES TO IMPLEMENT**
**RURAL UTILITIES SERVICE**
**BROADBAND STIMULUS GRANT PROGRAM**[1]



[1] The rules proposed herein focus on the provision of fixed, and not mobile, service.

**Sec. 1000. PURPOSES OF GRANT PROGRAM (HIGH SPEED BROADBAND SERVICES)**

(a) The American Recover and Reinvestment Act of 2009 (the "Act") seeks to preserve and create jobs and promote economic recovery and invest in infrastructure that will provide long–term economic benefits. The Act implements these purposes in part by authorizing and appropriating funds that, notwithstanding title VI of the Rural Electrification Act of 1936, would be available through grants (as well as loans and loan guarantees) for projects to construct, as expeditiously as possible consistent with prudent management, broadband infrastructure in any geographic area throughout the United States where at least 75% of the area to be served is a Rural Area without sufficient High Speed Broadband Service to facilitate rural economic development.

(b) The Agency shall give priority in awarding grants to project applications for Broadband Systems: that will deliver end users a choice of more than one High Speed Broadband Service provider; that provide High Speed Broadband Service to the highest proportion of rural residents in an Unserved Area; from, or including, borrowers or former borrowers under Title II of the Rural Electrification Act of 1936; that demonstrate that, if the application is approved, all project elements will be fully funded; that can be completed if the requested funds are provided; and, that can commence promptly following approval. No area of a project funded with amounts made available herein may receive funding to provide Broadband Service under the Broadband Technology Opportunities Program.

**Sec. 1001. DEFINITIONS**

(a) *Administrator* means the Administrator of the Rural Utilities Service, or his or her designee.

(b) *Agency* means the Rural Utilities Service, which administers the funds authorized and appropriated by the Act.

(c) *Broadband Service* means Current Generation Broadband Service or High Speed Broadband Transmission Service that enables customers to access the internet at least at the speeds required herein between the customer and the internet access node.

(d) *Broadband System* means transmission system infrastructure over which a High Speed Broadband Service is being provided.

(e) *Community* means any incorporated or unincorporated town, village, or borough recognized in the latest decennial census as published by the Bureau of Census.

(f) *Current Generation Broadband Service* means, for a wireline or point-to-point fixed wireless service, providing on an advertised and generally available basis to each customer from the internet access node an information transfer rate equivalent to at least 6 megabits/second from the provider to the customer (downstream) and at least 1.5 megabit/second from the customer to the provider (upstream).

(g) *Community Anchor Institutions* means public schools or education centers, public libraries, medical clinics, hospitals, community colleges, public universities, or law enforcement, fire and ambulance facilities.

(h) *Customer* means a household or business as measured by the U.S. Census.

(i) *Eligible Applicant* shall have the meaning as set forth in Sec. 1003.

(j) *Eligible Grant Purposes* shall have the meaning as set forth in Sec. 1005.

(k) *End User Equipment* means computer hardware and software, audio or video equipment, computer network components, telecommunications terminal equipment, inside wiring, interactive video equipment, or other facilities required for the provision and use of High Speed Broadband Service.

(l) *Facilitate Rural Economic Development* means the deployment of a Broadband System to a Community and its customers that can be readily upgraded to provide information transfer rates in excess of those currently provided and at least comparable to those in Urban Areas.

(m) *Grantee* means any entity receiving a grant.

(n) *High Speed Broadband Service* means, for a wireline or point-to-point fixed wireless service, providing on an advertised and generally available basis to each customer from the internet access node an information transfer rate equivalent to at least 25 megabits/second from the provider to the customer (downstream) and at least 6 megabits/second from the customer to the provider (upstream).

(o) *Insufficient Access to High Speed Broadband Service* means more than 33% of the customers (either residential or business or both) to be served by the project currently lack access to a provider of such service.

(p) *Matching Funds* means the applicant's qualified contribution to the project, as set forth in Sec. 1006(e).

(q) *Project* means the applicant's proposed increase in the supply of Broadband Service for a specific geographic area described by Census Tracts consistent with the purposes set forth in Sec. 1000 and which is to be financed by the grant and Matching Funds.

(r) *Rural Area* means any geographic area described by Census Tracts, as confirmed by the latest decennial census of the Bureau of the Census, which is not located within: (1) the boundaries of an Urban Area; or (2) an incorporated city or town with a population of more than 20,000.

(s) *Service Area* means, as described by Census Tracts, a Community (including the unincorporated geographic areas located outside and contiguous to the Community's boundaries) or a series of Communities so long as they (and their unincorporated areas) are contiguous, in which the applicant proposes to provide High Speed Broadband Service.

(t) *Unserved Area* means a geographic area described by Census Tracts where more than 20% of the customers (either residential or business or both) to be served by the project currently lack access to a provider of Broadband Service.

**Sec. 1002. PROCESS AND TRANSPARENCY**

(a) CONSISTENCY WITH MARCH 20, 2009 PRESIDENTIAL MEMORANDUM

The Presidential Memorandum of March 20, 2009 on ensuring responsible spending of recovery act funds (http://www.whitehouse.gov/the_press_office/Memorandum-for-the-Heads-of-Executive-Departments-and-Agencies-3-20-09/.) shall control the procedures and transparency measures used by the Agency. The provisions in this section shall be used so long as they are consistent with that memorandum.

(b) PROGRAM WEBSITE

The Agency shall maintain a website ("Program website") to facilitate the exchange of information with the public and applicants for grants. The website shall be updated regularly and shall include links to copies of any Agency announcements, actions, or decisions regarding the Program.

(c) PUBLIC NOTIFICATION OF FUNDING AVAILABILITY AND APPLICATION DATES AND SUBMISSION

The Agency shall publish in the Federal Register at least sixty (60) calendar days prior to the due date for submission of applications set forth in Sec. 1006 a Notice of Funds Availability ("NOFA") that shall set forth, at a minimum, the following: the total amount of funding available; the maximum and minimum funding for each grant; the procedures for the submission of applications; and, the appropriate addresses and agency contact information. Nothing shall preclude the Agency from determining that it is in the public interest to limit the total amount of funds that can be awarded to an applicant, including its affiliates, so long as the Agency issues a public announcement at least sixty (60) calendar days in advance of a particular filing period when that determination is to apply.

(d) PUBLIC NOTIFICATION OF AGENCY HEARINGS, WORKSHOPS, AND OTHER OFFICIAL AGENCY PROCEEDINGS

The Agency shall open to the public all conferences, meetings not subject to subsection (e), workshops, site visits, and its similar interactions with non-Agency persons, and the Agency shall provide notice of such activities on the Program's website at least five (5) calendar days in advance to facilitate public attendance

(e) PUBLIC INFORMATION AND INSPECTION OF RECORDS

(1) *Public posting of all Agency rulemakings and decisions.* The Agency shall post all information released relating to the Program, including but not limited to rulemakings, comments, orders, and other decisions, on the Program's website within two (2) calendar days of submission or release.

(2) *Public posting of all applications for grants, comments on applications, state endorsements of applications, awards of grants, denials or rejections of grants, grantee status reports, and grantee requests for modifications.* The Agency shall post applications for funding received under the Program, comments on applications, state endorsements of applications, awards of grants, denials or rejections of grants, grantee status reports, grantee requests for modifications, and any other information transmitted between the Agency and the applicant or grantee on its website within two (2) calendar days of receipt.

(3) *Confidential Business Information.* An applicant for a grant may request that materials or information submitted to the Agency be withheld from public inspection.

(A) Any party submitting information or materials to the Agency may submit therewith a request that business information not be made routinely available to parties requesting the applicant's information under the Freedom of Information Act ("FOIA," 5 U.S.C. § 552).

(1) Applicants submitting applications and grantees submitting reports are responsible for designating business information pursuant to the Department of Commerce's rules governing FOIA requests (15 C.F.R. § 4.9).

(2) Along with the unredacted application or status report, such parties shall provide a redacted copy of the application or status report for publication on the Program website.

(B) Requests for materials including business information will be handled as specified by the Department of Commerce's rules governing FOIA requests (15 C.F.R. § 4.9).

(C) If the materials are submitted voluntarily (*i.e.*, absent any direction by the Agency), the person submitting them may request the Agency to return the materials without consideration if the request for confidentiality should be denied. In that event, the materials shall ordinarily be returned (*e.g.*, an application shall be returned if it cannot be considered on a confidential basis). Only in the instance where the public interest so requires will the materials be made available for public inspection.

(1) If submission of the materials is required by the Agency to pursue an investigation into fraud, waste, or abuse and the request for confidentiality is denied, the materials shall be made available for public inspection.

(D) If no request for confidentiality is submitted, the Agency assumes no obligation to consider the need for non-disclosure but may determine on its own motion that the materials should be withheld from public inspection.

(E) If a request for confidentiality is denied, the person who submitted the request may, within five (5) business days, file an application for review by the Agency. If the application for review is denied, the person who submitted the request shall be afforded five (5) business days in which to seek a judicial stay of the ruling. If these periods expire without action by the person who submitted the request, the materials shall be returned to the person who submitted them or shall be placed in a public file. Notice of denial and of the time for seeking review or a judicial stay shall be given by telephone, with follow-up notice in writing. The first day to be counted in computing the time periods established in this subsection is the day after the date of oral notice. Materials will be accorded confidential treatment and not disclosed to the requesting party until the Agency acts on any timely applications for review of an order denying a request for confidentiality,

and until a court acts on any timely motion for stay of such an order denying confidential treatment.

(F) Third party owners of materials submitted to the Agency by another party may participate in the proceeding resolving the confidentiality of the materials.

(f) PUBLIC COMMENTS

(1) *Public comments on rules and reports.* Any person may submit comments on any proposed rule, report to Congress, or any other report issued or received by the Agency related to funding under the Program. All such comments shall be submitted electronically and shall be posted on the Program's website within one (1) calendar day of receipt by the Agency.

(2) *Public comments on applications.* Any person or entity may submit comments and any state may submit endorsements on any application for a grant within thirty (30) calendar days from the date on which the application is filed.

(3) *Public comments on requests for modifications.* Any person may submit comments on a grantee proposal for modifications (as set forth in Sec. 1010(d)) within fifteen (15) calendar days from the date on which the request for modification is filed.

(g) *EX PARTE* COMMUNICATIONS

(1) *Ex Parte Communications Defined.* An *ex parte* communication is any oral or written communication regarding a pending matter or proceeding, including an application for a grant, between a member of the Agency and any other party that does not occur in an Agency public hearing, Agency workshop, or other official Agency proceeding, or on the official Agency record for the proceeding.

(A) *Procedural discussions exempted.* Public notice requirements do not apply to communications between parties, including staff, for the purpose of exchanging information on or otherwise discussing procedural issues.

(B) *Federal intergovernmental meetings exempted.* The Agency may meet without public notice with federal agencies for the purpose of discussing any matter.

(2) *Required Disclosure of Ex Parte Communications*

(A) *Written presentations.* A person who makes a written *ex parte* presentation subject to this section shall submit no later than the next business day an electronic copy of the presentation through the Program's website for inclusion in the pubic record. The presentation (and cover letter) shall clearly identify the proceeding to which it relates, including the identity of an application for a grant, if any, shall indicate a full and complete copy has been submitted through the Program's website, and must be labeled as an *ex parte* presentation. If the presentation relates to more than one proceeding, a copy shall be filed for each proceeding.

(B) *Oral Presentations.* A person who makes an oral *ex parte* presentation subject to this section shall, no later than the next business day after the presentation, submit through the Program's website a memorandum which summarizes the new data or arguments. A memorandum shall contain a summary of the substance of the *ex parte* presentation and not merely a

listing of the subjects discussed. The memorandum (and cover letter) shall clearly identify the proceeding to which it relates, including the identity of an application for a grant, if any, shall indicate that a full and complete copy has been filed electronically, and must be labeled as an *ex parte* presentation. If the presentation relates to more than one proceeding, a memorandum shall be filed for each proceeding.

**Sec. 1003. ELIGIBLE APPLICANT**

To be eligible for a grant under the Program, an applicant shall:

(a) Be legally organized as an incorporated organization, an Indian tribe or tribal organization, as defined in *25 U.S.C. 450b (b) and (c)*, a state or local unit of government, or other legal entity, including cooperatives or private corporations or limited liability companies organized on a for-profit or not-for-profit basis.

(b) Have the legal capacity and authority to own and operate facilities to provide Broadband Service as proposed in its application, to enter into contracts and to otherwise comply with applicable federal statutes and regulations.

**Sec. 1004. ELIGIBLE PROJECT**

To be eligible for a grant, the Project shall:

(a) Deploy a Broadband System in a Service Area where at least 75% of the area to be served is a Rural Area without sufficient High Speed Broadband Service to facilitate rural economic development; and

(b) Offer High Speed Broadband Service to customers within the proposed Service Area.

**Sec. 1005. USE OF GRANTS FOR THE PROVISION OF HIGH SPEED BROADBAND SERVICES**

(a) ELIGIBLE GRANT PURPOSES

Grant funds may be used to finance:

(1) The construction, acquisition, or leasing of facilities to deploy a Broadband System to a Service Area and all required facilities needed to offer a High Speed Broadband Service to customers located within such area;

(2) Access to Broadband Service, including use of end-user equipment and free access to service for a period of two years after service is initiated to the customer, by Community Anchor Institutions;

(3) Access to Broadband Service, including use of end-user equipment and free access to service for a period of two years after service is initiated too the customer, by low-income, unemployed, aged, and otherwise vulnerable populations; and

(4) The purchase of land, buildings, or building construction needed to carry out the project.

(b) INELIGIBLE GRANT PURPOSES

Operating expenses incurred in providing such service are ineligible for grants, except as provided in subsections (a)2) and (a)(3) of this section.

**Sec. 1006. FILING OF APPLICATIONS FOR PROJECTS**

(a) ELIGIBLE PROJECTS

To be eligible for a grant, an Eligible Applicant shall submit an application pursuant to the requirements of this part for a project that is consistent with the Purposes of the Program set forth in Sec. 1000. Nothing shall preclude an applicant from applying for funding for geographic areas included in previous Agency loans, loan guarantees, or grants so long as such the proposed project is consistent with the requirements of this part.

(b) FILING GROUPS AND FILING PERIODS FOR APPLICATIONS

(1) Applications for projects shall be filed in any of three filing periods as follows:

(A) July 1, 2009;

(B) November 1, 2009;

(C) April 1, 2010.

(2) An applicant who has an application denied or otherwise rejected may re-file that application or one or more different applications in a subsequent filing period.

(3) Individual applicants may file more than one application in any filing period, but no more than one application related to any geographic area in the same filing period, and may not be granted more than one application over all filing periods in the same geographic area.

(c) ELECTRONIC FILING ONLY

All applications, comments, and *ex parte* communications on applications shall be submitted electronically as indicated on the Program's website.

(d) COMPLETE WHEN FILED AND CLARIFICATIONS

(1) All applications shall follow the format set forth in Sec. 1007 and be complete when filed. Any application not compliant with this requirement shall be rejected without prejudice for subsequent filing. Once a determination is made that an application is incomplete, the Agency shall notify the applicant of that status within one (1) calendar day in writing and electronically.

(2) The Agency may contact an applicant to clarify any statements, representations, or other information contained in the application. Notice of any such contact and the applicant's response shall be posted within one (1) calendar day on the Program's website.

(e) MATCHING FUNDS AND WAIVERS OF REQUIREMENT

(1) The applicant must contribute Matching Funds which are at least twenty percent (20%) of the cost of the project and shall be in the form of –

(A) Cash for eligible grant purposes.

(B) In-kind contributions for purposes that could have been financed with grant funds. In-kind contributions must be new or non-depreciated assets with established monetary values. Manufacturers' or service providers' discounts shall not be considered as Matching Funds.

(C) Services or facilities provided free of charge or at a reduced charge to customers of the project, so long as the value of the services and facilities are established by a reputable appraiser unaffiliated with the applicant.

(D) Costs incurred by the applicant, or by others on behalf of the applicant, for facilities, installed equipment, or other services rendered prior to

submission of the completed application shall not be deemed to qualify as Matching Funds.

(2) Any financial assistance from federal sources shall not be deemed to qualify as Matching Funds unless there is a federal statutory exception specifically authorizing the federal financial assistance to be considered as such.

(3) The Agency may waive the requirement that the applicant provide Matching Funds if the applicant files a petition with its application demonstrating with specificity that the applicant has attempted to acquire funding from a substantial number of sources, all these potential sources of funding have formally declined to provide such funding, and its financial status, operations, and reporting are sufficient and sound. Nothing shall preclude the Agency from requiring an applicant whose Matching Funds requirement is waived to post a performance bond whose value is equal to that of the grant and which amount will be paid to the U.S. Treasury in the vent the applicant defaults or does not otherwise complete the project in accordance with the terms of the grant.

(4) Nothing shall preclude the Agency from providing a loan to an applicant that would be used as Matching Funds.

(f) REVIEW OF APPLICATIONS

(1) CONSISTENCY WITH MARCH 20, 2009 PRESIDENTIAL MEMORANDUM
The Agency, in awarding grants, shall comply with the Presidential Memorandum of March 20, 2009 on ensuring responsible spending of recovery act funds (http://www.whitehouse.gov/the_press_office/Memorandum-for-the-Heads-of-Executive-Departments-and-Agencies-3-20-09/).

(2) REVIEW PROCESS
Applications conforming with the requirements of this part will be evaluated competitively by a panel of Agency employees selected by the Administrator and will be awarded points as described in the scoring criteria in Sec. 1008. Nothing shall preclude the Agency from using non-Agency employees, including from the private sector, to assist the panel in evaluating applications. In scoring the applications, the Agency shall rely upon the information contained in the application or provided to the Agency upon request and upon its own knowledge and expertise to determine the accuracy, weight, and credibility of any statements and information included in the application as well as the feasibility of the proposed project. The Agency may consult with the Federal Communications Commission and other federal agencies if necessary to ensure the accuracy of statements and information. Applications in each filing period shall be ranked by the Agency, and the Agency shall award grants in rank order until all grant funds allocated for the particular filing period and filing group are expended. The Agency has sole discretion to determine the number and size of awards granted consistent with the ranking of applications.

(3) REVIEW PERIOD AND DEADLINES FOR AWARDS
The Agency shall complete the review of an application and determine whether to award a grant for the proposed project no later than ninety (90) calendar days after

the final filing date for the first two filing periods (Rounds 1 and 2) and not later than September 30, 2010 for the final filing period (Round 3).

(g) NOTIFICATION OF AWARDS

The Agency shall formally notify an applicant electronically and in writing of a decision to award or not award a grant, including the basis for awarding or not awarding a grant for an application, and shall post such decisions and grant documentation specified in Sec. 1009 on the Program's website. Without limitation, the Agency shall specify the scoring points received.

(h) APPEALS OF AWARD DECISIONS

An applicant whose application is denied or otherwise rejected may file an appeal with the Agency within fifteen (15) calendar days of the date of formal notification of denial or rejection and seek to have a grant awarded. The appeal shall be accompanied by documentation providing with specificity the rationale and evidence that would support the award of a grant. The Agency shall act on the appeal within forty-five (45) calendar days and shall award a grant only if the denial or rejection was based on inaccurate scoring and ranking of the application. An applicant that has filed for an appeal may not resubmit the application until the Agency issues a decision.

**Sec. 1007. APPLICATION INFORMATION REQUIREMENTS**

(a) A completed application shall include the following documentation, studies, reports and information in a form satisfactory to the Agency. Applications shall be prepared in conformance with the provisions of this part and applicable USDA regulations, including 7 CFR 3015, 3016, and 3019. Applicants shall use the Agency's Application Guide for this program, found at http://www.usda.gov/rus/telecom/.

(b) Completed applications shall include the following:

(1) *An Application for Federal Assistance.* A completed Standard Form 424.

(2) *An Executive Summary of the Project.* The applicant shall provide the Agency with a summary of the project, including the following:

(A) A description of the project, including, where applicable, the number of subscribers, households, and businesses covered by the project and jobs (expressed in person-hours) directly created to perform the project;

(B) A description of the applicant, including all affiliated entities and unaffiliated partners;

(C) The projected total project cost and an explanation as how that cost was derived;

(D) An overview of the Broadband System to be developed, including the types of equipment, technologies, and facilities to be used, and the High Speed Broadband Service to be advertised and generally available to customers;

(E) A description of the availability of existing Broadband Service in the proposed project area and the methodology used to support the description; and

(F) A demonstration that the proposed project meets the purposes of the Program, including that at least 75% of the Service Area is a Rural Area with Insufficient High Speed Broadband to facilitate rural economic development and that the project will be commenced and completed expeditiously.

(3) *Applicant and Service Area Information.* Each applicant shall provide the following information:

(A) Contact information, including an e-mail and postal address to be used to receive official notices from the Agency;

(B) Background on the applicant, including operational and financial information for the previous five (5) years;

(C) Evidence of its legal existence and authority to enter into a grant agreement with the Agency and to perform the activities proposed under the grant application, including any certifications from local, state, and federal regulatory authorities;

(D) A description of the applicant's current telecommunications and broadband infrastructure;

(E) A description of service areas where the applicant currently provides telecommunications, broadband, wireless, video, or satellite service; and

(F) A description of other broadband facilities and services currently being provided in the service area of a proposed project and thus whether such

area is at least 75% rural with Insufficient High Speed Broadband Service and is unserved.

(4) *Statement of experience.* The applicant shall provide a written narrative describing its demonstrated capability and experience, if any, that will enable it to achieve the objectives of and implementing the activities in the project in an efficient, reliable, and sustainable fashion.

(5) *Project design and costs.* The applicant shall submit a design of the project that contains at a minimum the following:

(A) A brief narrative discussing the proposed project;

(B) The services to be provided by the project and the technology used to provide those services;

(C) The number of customers to be served by the project, the service area, and the average density of the households in the service area (expressed as households per square mile);

(D) Project budget, including any expenditures that total more than $10,000 ("significant expenditures");

(E) All existing and proposed facilities, services, or both that are part of the project;

(F) Engineering design studies providing an economical and practical engineering design of the project, including a detailed description of the facilities to be funded, technical specifications, data rates, and costs;

(G) If applicable, equipment suppliers, construction and installation firms, and other entities that the applicant has pre-selected to be used on the project, along with the background on the entity and its specific role in the project;

(H) An estimated price for services provided to customers using facilities supported by the project and, to the maximum extent practicable, the average price within the state for comparable Broadband Service (provided on a cost per megabit basis); and

(I) A map of the proposed Service Area reflecting the proposed location of any key facilities.

(6) *Scope of work.* The scope of work shall include, at a minimum:

(A) The specific activities and services to be performed under the project;

(B) A description specifically identifying the entities and individuals who will carry out the activities and services and their relevant qualifications and experience;

(C) The time-frames for accomplishing the project objectives and activities, including the project start and end dates; and

(D) A budget for all capital, operational, and administrative expenditures reflecting the line item costs for Eligible Grant Purposes in Sec. 1005 and other sources of funds necessary to complete the project.

(7) *Scoring criteria documentation.* Each grant applicant shall address and provide documentation on how it meets each of the scoring criteria detailed in Sec. 1008, except for areas scored by the Agency in its discretion.

(8) *Financial information.* The applicant shall provide a narrative description and supporting evidence demonstrating the availability of funding to complete the project within two (2) years of the date of the award, sufficiency of resources and expertise necessary to undertake and complete the project, and, for infrastructure projects, demonstrating the sustainability of the project during building out and for two (2) years after completion. At minimum, the following financial information is required:

(A) All projected expenses, including all sources of funding (both public and private) for the project;

(B) A demonstration that it satisfies the Matching Funds requirement unless a waiver is filed;

(C) If requested by the agency as a result of a Matching Funds waiver, performance bond documentation;

(D) Certified financial statements, if available; otherwise, the most current income statement and balance sheet for existing operations; and

(E) Pro-forma financial information for five (5) years, evidencing the sustainability of the project; and

(F) A description of other broadband facilities and services currently being provided in the service area of a proposed project and thus whether such area has insufficient High Speed Broadband Service or is unserved.

(9) *Support from other entities.* The applicant shall describe any support for the project from any state or local government, health, educational, or social institutions, or any public safety entities in the project service area.

(10) *Compliance with other federal statutes.* The applicant must provide certification that it is in compliance with other federal statutes and regulations, including, but not limited to the following:

(A) 7 CFR part 15, subpart A – Nondiscrimination in Federally Assisted Programs of the Department of Agriculture – Effectuation of Title VI of the Civil Rights Act of 1964.

(B) 7 CFR part 3015 – Uniform Federal Assistance Regulations.

(C) 7 CFR part 3017 – Government-wide Debarment and Suspension (Non-procurement).

(D) 7 CFR part 3018 – New Restrictions on Lobbying.

(E) 7 CFR part 3021 – Government-wide Requirements for Drug-Free Workplace (Financial Assistance).

(F) Certification Regarding Architectural Barriers.

(G) Certification Regarding Flood Hazard Precautions.

(H) An environmental report, in accordance with 7 CFR 1794.

(I) Federal Obligation Certification on Delinquent Debt.

## Sec. 1008. SCORING OF APPLICATIONS TO DETERMINE AWARDS

The following formulas shall be used to score an application. All eligible applications shall receive points (Maximum 100 points) pursuant to the following scoring criteria:

SCORING CRITERIA DEFINED

(a) *Jobs Creation* (up to 20 points). The number of jobs directly created by the project, including for construction, support, and management. The points awarded shall be determined by the following formula:

$$\text{Jobs Points} = (j_1 / tc_1) / (\text{Max}(j / tc)) * 20$$

j = Direct jobs proposed to be created by the project (expressed in person-hours of work to be expended by all individuals directly working on the project)

tc = Total cost of project

(1) "$j_1 / tc_1$" is the ratio "j / tc" for the specific project being scored;

(2) "Max(j / tc)" is the highest ratio "j / tc" of any project submitted by an applicant during the current filing window.

(b) *Project Feasibility, Initiation, and Completion* (up to 20 points). The Agency shall not consider whether the applicant has requested or receives a waiver of the Matching Funds requirement in making any of these scoring determinations. The Agency shall not preclude or otherwise discriminate against applications where project design, construction, and installation are engaged in simultaneously, that is, "design-build" projects.

(1) *Feasibility* (up to 10 points). This criterion measures the project's overall chances for successful completion. Among the factors to be considered are:

(1) The experience of the applicant;

(2) The ability of the applicant to obtain the necessary labor and materials at the price specified in the application;

(3) Use of proven technologies; and

(4) Existence of legal barriers.

(2) *Initiation and Completion* (up to 10 points). This criterion measures the number of months the applicant has proposed to take to complete the project in light of the total cost of the project. Points shall be determined based on the following formula:

$$\text{Timeliness Points} = (\text{Min}\ (d / tc) / (d_1 / tc_1)) * 10$$

(1) Where "d" is the number of months between the date of the grant award and the proposed date of completion of the specific project being scored.

(2) Where "tc" is the total cost of the proposed project.

(3) Where Min (d / tc) is the smallest ratio for any project submitted of the proposed number of months to complete the project divided by the total cost.

(4) The Agency has the discretion to alter "d" for projects in areas where construction is infeasible because of inherent weather conditions, *e.g.* states in very cold climates. In such instances, the Agency may alter "d" by delaying the initiation date of the project from the date of the grant award to the date when weather permits construction to be undertaken and may "stop the clock" if the project is to continue through subsequent periods when construction is infeasible.

(c) *Project Scope and Cost* (up to 10 points)

This shall be determined based on the number of customers the applicant will be able to serve using its Broadband System divided by the funding amount requested from the Agency. Points will be determined based on the following formula:

$$\text{FRPPC Points Total} = \text{FRPPC Points}_{\text{rural}} + \text{FRPPC Points}_{\text{non-rural}}$$

Rural Areas:

$$\text{FRPPC Points}_{\text{rural}} = ((\text{Min}(a) / a_i) * (\text{Min}(d) / d_1)) * (\%\ \text{of Total Service Area}_{\text{rural}}) * 10$$

Non-Rural Areas:

$$\text{FRPPC Points}_{\text{non-rural}} = (\text{Min}(a) / a_i) * (\%\ \text{of Total Service Area}_{\text{non-rural}}) * 10$$

a = Funds Requested / Potential Customers; "d" is the average number of homes per square mile in the proposed service territory.

(1) "$a_1$" is the "a" for the specific project being scored;
(2) "Min(a)" is the lowest "a" value of any project submitted by an applicant during the current filing window;
(3) "$d_1$" is the "d" for the specific project being scored;
(4) "Min(d)" is the lowest "d" for any project submitted by an applicant during the current filing window.

(d) *Infrastructure Capabilities and Long-Term Sustainability* (up to 20 points)

(1) *Broadband Transmission Speed* (15 points). Each application is required to provide High Speed Broadband Service – at least 25 Mbps downstream and 5 Mbps upstream. 10 additional points will be awarded if the applicant constructs a Broadband System that makes generally available to all customers in the Service Area increased transmission speeds of at least 50 Mbps downstream and 20 Mbps upstream from each customer to the internet access node.

(2) *Long-Term Sustainability* (up to 5 points). The Agency shall award up to 5 points based on its assessment of the applicant's competence and experience in establishing and operating long-term viable projects and the proposed project's likelihood of sustainability.

(e) *Affordability* (5 points). 5 points shall be awarded to an applicant that commits to charge each customer served over the infrastructure constructed as part of a grant a price/Mbps for Broadband Service equal to or less than the average price/Mbps for such broadband transmission service in the state for a period of at least two (2) years after service to a customer is initiated.

(f) *Competition or Serving Area Preference* (10 points). An applicant giving end-users a choice of internet service providers shall be awarded 10 points. An applicant serving an unserved area shall be awarded 10 points.

(g) *Rural Utilities Service Borrower's Preference* (10 points). A current or past borrower from the Rural Utilities Service shall be awarded 10 points.

(h) *Community institution connectivity and community institution support* (up to 5 points). This criterion shall be used to score applications based on the degree of connectivity to Community Anchor Institutions and the degree of support from such institutions. Applicants shall receive up to 5 points, in the discretion of the Agency, for demonstrating that it has connected a substantial number of these institutions and received support from them for the project.

**Sec. 1009. GRANT DOCUMENTATION AND DISTRIBUTION OF FUNDS**

(a) The terms and conditions of grants shall be set forth in grant documents prepared by the Agency. The documents shall require the applicant, including any affiliated entities or partners in the project, to own or control all equipment and facilities financed by the grant. Among other matters, the Agency may prescribe any conditions it deems warranted in advancing funds, including any terms and conditions applicable to the construction and operation of the project.

**Sec. 1010. POST-AWARD REPORTING, COMPLIANCE, MODIFICATION, AND PENALTIES**

(a) REPORTING

(1) *Frequency of Reports*. Every grantee shall report quarterly on the grantee's use of the assistance and its progress in fulfilling the objectives for which such grant funds were provided. The first report will be due ninety (90) calendar days from the date of the award of the grant, and an updated report will be due every ninety ( 90) calendar days thereafter.

(2) *Content of Reports*. Every report submitted to the Agency shall include:

(A) A comparison of the actual accomplishments to the objectives established for that period in either the application or a previously filed report.

(B) A description of any problems, delays, or adverse conditions which have occurred, or are anticipated, and which may or will affect the attainment of overall project objectives, prevent the meeting of time schedules or objectives, or preclude the attainment of particular project work elements during the established time periods. This disclosure shall be accompanied by a statement of the action taken or planned to resolve or ameliorate the situation.

(C) A list of significant expenditures made during the most recent reporting period. The list should be specific enough to allow the Agency to determine how the money was spent.

(D) Objectives and timetable established for the next reporting period.

(b) COMPLIANCE REQUIREMENTS

*Audit Requirements.* Each grantee shall have a yearly audit conducted by a licensed and independent Certified Public Accounting firm ("CPA").

(1) The audit standards to be applied to Program awards are the "Government Auditing Standards" ("GAS") issued by the issued by the Comptroller General of the United States. In the interest of efficiency, the grantees are required to retain their own independent CPA to perform these audits. The Department of Commerce's Office of Inspector General ("OIG") reserves the right to conduct audits as deemed necessary and appropriate.

(2) Each grantee must establish an annual "as of" audit date within twelve months of the date of receipt of the first advance of funds from grants approved by the Agency and shall prepare financial statements as of the date established.

(3) The grantee will not limit the scope of the audit to the extent that the CPA is unable to provide an unqualified opinion that the financial statements are presented fairly in conformity with GAAP.

(A) If the CPA determines during the audit that an unqualified opinion cannot be issued due to a scope limitation imposed by the grantee, the CPA should use professional judgment to determine what levels of the grantee's management should be informed.

(B) After informing the grantee's management, if the scope limitation is not adequately resolved, the CPA should immediately contact the Agency. The Agency will endeavor to resolve the matter with the grantee.

(4) Until the grantee's approved project is completed, the grantee shall furnish three copies of the auditor's report, report on compliance and on internal control over financial reporting, and management letter to Agency within one hundred-twenty (120) calendar days of the as of audit date.

(5) A grantee that qualifies as a unit of state or local government or Indian tribe as such terms are defined in the Single Audit Act of 1984 (31 U.S.C. 7501 *et seq.* ), the Single Audit Act Amendments of 1996 (31 U.S.C. 7505 *et seq.*) and OMB Circular A–133, Audits of States, Local Governments, and Non-Profit Organizations (copy available from the Executive Office of the President, Publication Services, 725 17th St., NW., Suite 2200, Washington, DC 20502; 202–395–7332), must comply with this part as follows:

(A) A grantee that expends $300,000 or more in a year in federal awards shall have an audit performed and submit an auditor's report meeting the requirements of the Single Audit Act of 1984 and the Single Audit Act Amendments of 1996.

(B) A grantee that expends less than $300,000 in federal awards during the year shall have an audit performed in accordance with the requirements of this part.

(C) A grantee shall notify the Agency, in writing, within thirty (30) calendar days of the as of audit date, of the total federal awards expended during the year and shall state whether it will have an audit performed in accordance with the Single Audit Act of 1984 and the Single Audit Act Amendments of 1996, or this part. If an audit is performed in accordance with the Single Audit Act of 1984 and the Single Audit Act Amendments of 1996, an auditor's report that meets the requirements of the Single Audit Act of 1984, and the Single Audit Act Amendments of 1996, will be sufficient to satisfy that borrower's obligations under this part.

(D) Pursuant to the terms of the audit agreement, the CPA shall make all audit-related documents, including auditors' reports, work-papers, and management letters available to the Agency, or its designated representative, upon request and must permit Agency, or its designated representative, to photocopy all audit-related documents.

(c) CERTIFICATION

(1) Every twelve (12) months following grantee's recipient of the funds provided under the Program, a grantee shall submit to the Agency a certification that it has complied with the terms of its grant. At a minimum, the certification shall be made by an officer of the entity receiving the grant and certify that:

(A) It has complied with the non-discrimination and interconnection requirements of subsection (b)(1) of this section.

(B) It has obtained an audit from a independent auditor and that a full and complete copy of that audit is attached to the certification being submitted.

(C) The grantee has only used funds received from the Program for permissible purposes.

(D) The grantee does not anticipate deviating from either the terms of its grant or the rules governing the use of the fund in the following year.

(d) MODIFICATIONS TO PROJECT

(1) *Project Modifications Require Agency Approval.* A grantee may not make any material modifications to the project without receiving Agency approval prior to committing to such modifications. Material modifications include:

(A) Modification of the proposed service area by more than a *de minimis* amount.

(B) Modifications that would result in a reduction of the speed of the Broadband Service to be provided by the project by more than 5%.

(C) Modification of the technology used to provide services.

(D) Modifications that would reduce the number of customers that would have access to services offered by the project by more than 5%.

(E) An extension in the completion date for the project by more than fourteen (14) days.

(F) A projected or actual increase of 5% or more of any of the projected expenses in any of the following categories:

(1) Capital expenses (*e.g.*, equipment, facilities, real estate);

(2) Labor expenses (*e.g.*, wages, contractor related expenses);

(3) Operational expenses (*e.g.*, interconnection facilities, electricity).

(2) *Modifications for Good Cause.* Any grantee may request for good cause a material modification of the terms of the project for which a grant was received by submitting the modification to the Agency along with:

(A) A brief narrative explaining the nature and necessity of the modification;

(B) If applicable, a description of how the services to be provided by the project or the technology used to provide those services will be modified;

(C) The number of affected potential customers;

(D) The effect on the proposed project budget and, if necessary, a new budget;

(E) Any new engineering or system design studies supporting the modification;

(F) Any modification of the estimated price for services provided to customers using facilities supported by the project;

(G) If applicable, a map of the modified proposed service area reflecting the proposed location of any key facilities or expense items; and

(H) If applicable, a new time-frame for accomplishing the project objectives and activities, including a list of objectives to be accomplished in the next ninety (90) calendar days.

(3) *Criteria for modifications.* Modifications shall be granted upon a showing that the requested modifications:

(A) Comply with the purposes of the Program and the application submitted by the grantee;

(B) Do not significantly diminish the ability of the grantee substantially to achieve the objectives included in the application; and

(C) Do not constitute or result from waste, poor management, or deception of the Agency in the grantee's application.

(4) *Timing.* The Agency shall issue a decision on a requested modification within thirty (30) calendar days of its submission, except that if a grantee, within the reasonable discretion of the Agency, demonstrates a need for immediate action, the Agency will issue its decision within ten (10) calendar days.

(e) INVESTIGATIONS FOR NON-COMPLIANCE AND ASSESSMENT OF PENALTIES

(1) *Notification.* The Agency may at any time issue a letter of inquiry to the grantee.

(2) *Opportunity to Respond and Agency Determination.* A grantee receiving a letter of inquiry shall respond within fourteen (14) calendar days. Upon receiving a response, the Agency shall determine whether an investigation into any allegations of wrongdoing is warranted.

(3) *Agency Investigation.* In conducting an investigation, the Agency may require the grantee to provide any and all documentation relating to the grant. The Agency may conduct interviews with officers and employees of the grantee.

(4) *Opportunity to Cure.* A grantee subject to an investigation for non-willful breaches of the terms of its grant shall be given an opportunity to cure the breach by taking remedial steps set forth by the Agency.

(5) *Penalties for non-compliance or breach.* The Agency may revoke a grant and require forfeiture of a performance bond if a grantee fails to cooperate with an Agency investigation or if the Agency determines that the grantee willfully breached the terms of its grant. The Agency may impose fines for non-willful breaches that are not cured in a timely fashion.


# ECONOMIC EFFECTS OF TAX INCENTIVES FOR BROADBAND INFRASTRUCTURE DEPLOYMENT

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FTTH council | fiber to the home

# ECONOMIC EFFECTS OF TAX INCENTIVES FOR BROADBAND INFRASTRUCTURE DEPLOYMENT

## EXECUTIVE SUMMARY

Investments in next generation broadband infrastructure, such as fiber to the home networks, generate both immediate and long-term benefits for the U.S. economy. In the short run, increased capital investment leads directly to increased employment and output. In the longer run, the rapid deployment of affordable broadband services transmitted over next generation infrastructure is essential to U.S. competitiveness. Tax incentives to encourage deployment of these high-speed broadband services therefore represent an efficient mechanism for increasing both short-term economic growth and long-run economic competitiveness.

We analyzed four proposals: (1) 100 percent expensing of investments made in next generation broadband networks – defined as those networks capable of delivering at least 100 megabits downstream and 20 megabits upstream; (2) 50 percent expensing of broadband investments in rural and underserved areas capable of delivering at least 5 megabits downstream and 1 megabit upstream; (3) tax-credit bonds for private investments in next generation broadband infrastructure; and (4) tax-credit bonds for public sector investments in next generation broadband infrastructure.

Our results demonstrate that each of these proposals would generate substantial net benefits for the U.S. economy. Specifically:

- The two tax credit bond proposals would have the largest impact on the economy, generating more than $30 billion in new investment in next generation broadband infrastructure and more than $100 billion in additional GDP over the next three years, and directly creating approximately 215,000 net new jobs in each of the next three years.

- The expensing proposals – which are far less "expensive" in terms of forgone tax revenues – would also have significant effects on investment, growth and employment, generating up to $6 billion in new investment and over $18 billion in increased GDP over the next three years, and directly creating approximately 37,000 net new jobs in each of the next three years.

- All of the proposals represent efficient mechanisms for stimulating economic activity and employment. Even ignoring the offsetting tax revenues that would result from increased employment and economic activity, and counting only direct employment effects, the tax expenditure per new job created is between $50,000 and $57,000 for the three proposals involving next generation networks, and approximately $71,000 for the rural/underserved proposal.

- The proposals would significantly increase next generation broadband availability overall and current generation availability in rural and underserved areas, reduce broadband prices

(as measured by price per megabit), increase broadband penetration, and thus result in substantial indirect effects on productivity, growth and employment. Under the two expensing proposals, for example, up to 6.6 million additional homes would be passed by fiber to the home type networks, and broadband service would become available to 4.0 million homes in rural and underserved areas that do not have broadband access.

- Increased broadband penetration resulting from lower prices and increased availability would result in additional "indirect" job creation. For example, the two tax-credit bond proposals would result in a sustained increase in employment of nearly 360,000 new jobs.

Finally, it should be noted that these proposals, if adopted, would affect economic activity almost immediately. Private sector firms are already in the field deploying new broadband infrastructure and have the ability to further accelerate planned deployments. The temporary nature of the four proposals analyzed here would give these firms very strong incentives to "front-load" investment activities that might otherwise be stretched out over the course of many years (especially in view of the current downturn in economic activity).

The results of our analysis are summarized in Table 1, which is reproduced below.

TABLE 1: SUMMARY OF ANNUAL DIRECT ECONOMIC EFFECTS ON JOBS AND OUTPUT, 2009-2011

| | 100% Expensing for 100/20 Mbps | 50% Expensing for 5/1 Mbps (Rural/Underserved Areas only) | Private Sector Tax Credit Bonds | Public Sector Tax Credit Bonds |
|---|---|---|---|---|
| Direct Effects | | | | |
| – Output ($Billion, 2009-2011 total) | 5.214 - 15.334 | 1.051 - 3.091 | 93.878 | 9.388 |
| – Jobs (Annual Increase) | 10,965 - 32,250 | 1,840 - 5,413 | 197,437 | 19,744 |
| Forgone Tax Revenues over Investment Life ($Billion) | 0.583 - 1.715 | 0.131 - 0.386 | 11.178 | 0.985 |
| **$ Forgone Tax Revenue per Direct Effect Job** | **$53,182** | **$71,229** | **$56,616** | **$49,889** |
| **Direct Jobs per $Million Forgone Tax Revenue** | **18.804** | **14.039** | **17.663** | **20.045** |

FTTH council | fiber to the home

## CONTENTS

## I. INTRODUCTION

1. We have been asked by the Fiber-to-the-Home Council (FTTH Council) to analyze the economic impact of proposed tax incentives for broadband deployment. We analyze four specific proposals:

A) Immediate expensing of 100 percent of investments providing 100 megabit downstream/20 megabit upstream service to any area in the United States for three years (2009-2011),

B) Immediate expensing of 50 percent of investments providing 5 megabit downstream/1 megabit upstream service to rural and underserved areas in the United States for three years (2009-2011),

C) Issuance by private sector entities of up to $10 billion in tax-credit bonds per year over the next three years (2009-2011) to fund investments on broadband deployments providing 100 megabit downstream/20 megabit upstream service to any area in the United States; and

D) Issuance by public sector entities of up to $1 billion in tax-credit bonds per year over the next three years (2009-2011) to fund investments on broadband deployments providing 100 megabit downstream/20 megabit upstream service to any area in the United States.

2. Each of these proposals will generate significant benefits for the U.S. economy, measured both in increased GDP and increased employment. GDP and employment will increase over the next three years because of the increased investments by broadband providers resulting from the tax relief ("direct effect"). Table 1 shows the economic impact of each of the four proposals.

TABLE 1: SUMMARY OF DIRECT ECONOMIC EFFECTS ON JOBS AND OUTPUT, 2009-2011

| | 100% Expensing for 100/20 Mbps | 50% Expensing for 5/1 Mbps (Rural/Underserved Areas only) | Private Sector Tax Credit Bonds | Public Sector Tax Credit Bonds |
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3. As Table 1 shows, the impact on economic output from 2009 to 2011 ranges from $1.051 billion for the 50 percent expensing proposal to $93.878 billion for the private sector tax-credit bonds. The increase in average annual employment ranges from 1,840 net new jobs for the 50 percent expensing proposal to 197,437 net new jobs for the private sector tax-credit bond proposal.

4. Table 1 also shows the forgone tax revenues from each proposal. Our estimates of forgone tax revenues represent only the direct effect of each policy, and do not account for offsetting revenues resulting from increased incomes for suppliers of the inputs for broadband deployment (e.g., income taxes resulting from increased employment). Our estimates of the forgone tax revenues over the 15-year depreciable life of the investments made from 2009 to 2011 range from $131 million to $11.2 billion for each of the four proposals. Thus, from 2009 to 2011, each of the four proposals will sustain an average of between 14 and 20 net new jobs per million dollars of forgone tax revenue as a result of the direct effect of increased broadband capital expenditures.

## II. THE IMPACT OF TAX INCENTIVES ON INVESTMENT AND THE ECONOMY

5. Investment tax incentives affect the economy by reducing the after-tax cost of investment and thus increasing the effective rate of return on investment (ROI) from what it would be in the absence of the tax incentive. As a result, firms choose to make investments that would otherwise be uneconomic, and the overall amount of investment in the economy increases accordingly.

6. By increasing investment, investment tax incentives have a direct effect on employment and output. The direct effects are jobs and economic activity created as a direct result of increased outlays for equipment, increased employment for installation, and associated expenses (e.g., jobs resulting from increased purchases of equipment needed for installation, such as bucket trucks and construction equipment). The most authoritative and generally accepted means of estimating the direct effect of increased investment is the RIMS II model, developed by the Bureau of Economic Analysis.

## III. PROPOSALS ANALYZED

7. We analyzed four specific proposals. In this section, we briefly describe each.

### A. Expensing Proposals

8. Expensing (or accelerated depreciation) affects the after-tax cost of investment by allowing a firm to deduct from its taxable earnings the full amount spent on the investment, rather than stretching that deduction out based on the depreciation schedule for that investment. The after-tax cost of the investment is thus reduced by the difference between the value of the tax deduction taken in year one, on the one hand, and the present value of the flow of tax deductions that would otherwise be taken over the life of the equipment. The impact of

expensing thus depends on the depreciation life (for tax purposes) of the eligible investment, and on the applicable tax rate.

9. **100/20 Mbps**: The specific expensing proposal we were asked to analyze would allow for immediate expensing of 100 percent of investments made over three years (2009-2011) that provide 100 megabit downstream/20 megabit upstream service to any area in the United States.

10. **5/1 Mbps Rural & Underserved**: The second specific expensing proposal we were asked to analyze would allow for immediate expensing of 50 percent of investments made over three years (2009-2011) that provide 5 megabit downstream/1 megabit upstream service to rural and underserved areas of the United States.

## B. Private Sector Tax-Credit Bond Proposal

11. Tax-credit bonds are debt instruments that qualify bondholders to receive tax credits from the U.S. Treasury, effectively reducing the bondholders' tax liability by an amount equal to the tax credit. As a result, the yield required to sell such bonds at par is reduced by the value of the tax credit to the bonds' purchasers.

12. The tax-credit bond proposals we were asked to analyze call for the Secretary of the Treasury to establish tax credits which allow issuers to sell the bonds at a zero coupon rate. Thus, bondholders would receive tax credits equal to the amount they would have received in interest had the bonds been sold without the tax credit. Under this proposal, private sector entities would be able to borrow up to $10 billion in tax-credit bonds per year over the next three years (2009-2011) to fund investments on broadband deployments providing 100 megabit downstream/20 megabit upstream service to any area in the United States.

## C. Public Sector Tax-Credit Bond Proposal

13. Our analysis of the public sector tax-credit bond proposal is similar to the analysis of the private sector tax-credit bond proposal. The public sector proposal would allow for public sector entities to partner with private sector entities in the deployment of broadband. This access to lower-cost funding would induce a firm to invest more in broadband deployments than it would absent the tax incentive.

14. The specific tax-credit bond proposal we were asked to analyze would allow for the issuance by public sector entities of up to $1 billion in tax-credit bonds per year over the next three years (2009-2011) to fund investments on broadband deployments providing 100 megabit downstream/20 megabit upstream service to any area in the United States. The FTTH Council believes that providing $1 billion per year in bonds is appropriate for this program, as compared to the larger $10 billion in bonds for the private sector program described above, because to date public sector entities have been involved more selectively in deploying broadband infrastructure and because, at least for municipalities, they are limited in the scale of their deployments by the

geographic limitations of their jurisdictions. In addition, public sector entities typically take substantially longer to deploy broadband networks than private sector entities – in some recent cases, approximately three years from proposal to groundbreaking.

## IV. ANALYSIS OF DIRECT EFFECTS

15. Our analysis of each proposal entailed estimating the direct effects of increased spending resulting from the tax incentives. All of our models include various baseline assumptions related to the number of homes passed and served by broadband technology and the investment required to deploy and maintain broadband lines. For estimates relating to modeling broadband service of 100/20 Mbps, we use historical data and projections on fiber-to-the-home (FTTH), the most prevalent form of technology currently used to achieve the speeds required to meet the tax incentive thresholds. For estimates relating to modeling broadband service of 5/1 Mbps, we use historical data and projections on cable and digital subscriber line (DSL) broadband service.

### A. Description of Data

- **100/20 Mbps Service (FTTH)**

16. We use historical data and an average of forecasts of homes passed and homes served by FTTH through 2013 from RVA Market Research (RVA). Dividing RVA's forecasts of the number of homes passed and homes served by Morgan Stanley's forecasted number of households through 2011[1] yields annual fiber penetration rates and adoption rates.

17. To estimate the cost to deploy and serve a home with fiber, we use estimates from a proposal for fiber deployments for the city of Portland, Oregon.[2] According to the 2007 proposal by Uptown Services, capital expenditures per home passed with FTTH were $765 in outside plant build-out costs. Uptown Services estimated that subscriber capital investments, which would include optical network terminals (ONTs), drop cables, connectors, ONT power supply, and set top boxes would be between $667 (without digital video recorder (DVR)) and $817 (with DVR) per new subscriber. Therefore, we assume that the investment required to pass a home with fiber is $765 and the additional investment required to serve a home is $742 (average of $667 and $817) in 2007. After 2007, we assume a 5 percent annual decrease in the investments required to pass and serve a home with fiber.

18. Finally, we assume that 100 percent of forecasted fiber capital expenditures would meet the speed limits necessary for eligibility for the tax expensing and tax-credit bond proposals

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[1] Simon Flannery, Benjamin Swinburne, David Gober, Daniel Gaviria, & Chad Harris, Morgan Stanley, *Cable/Sat & Telecom Broadband Outlook: Online Usage Growth Favors Cable, DirecTV Remains HD Leader* (July 18, 2008), at Ex. 26.

[2] Uptown Services, LLC, "Phase 2 Business Case for a Community Fiber Network, Prepared for the City of Portland by Uptown Services, LLC," Nov. 2007, at 25.

because RVA's forecasts are based on deployments that can meet the 100/20 Mbps speed thresholds.

- **5/1 Mbps Service (Cable and DSL)**

19. To estimate the number of homes passed by 5/1 Mbps service without the tax incentive, we use data from Morgan Stanley's forecast of residential cable and DSL subscribers through 2011.[3] Morgan Stanley presents forecasts of broadband subscribers by cable and combined DSL+Fiber service. We estimate DSL subscribers by subtracting the RVA forecasts of fiber subscribers from Morgan Stanley's forecast of DSL+Fiber subscribers. Morgan Stanley forecasts the number of homes passed for cable broadband services, but does not forecast the number of homes passed by DSL service.[4] We assume that if a home is not passed by cable broadband, then it is not passed by DSL. Based on Morgan Stanley's forecasts of homes passed by cable broadband and total households, an average of 7.3 million homes (equal to 6.0 percent of all households) will not be passed by broadband from 2009 through 2011 without the proposed tax incentives.

20. To estimate the cost to deploy and serve a rural or underserved home with cable, we use capital expenditure estimates of cable deployment from Morgan Stanley. Both cable and DSL broadband require three types of capital expenditures: (1) deployment capital expenditures, or investment in upgrading networks; (2) expenditures on customer premises equipment (CPE), such as modems; and, (3) maintenance capital expenditures. Morgan Stanley forecasts capital expenditures through 2012 on rebuilds and upgrades of cable networks for advanced services, including broadband, digital cable, and telephony, per basic subscriber, expenditures on CPE per net additional broadband subscriber, and maintenance capital expenditures on broadband per existing subscriber.[5] Morgan Stanley's average forecasted estimates for cable broadband capital expenditures between 2009 and 2011 were (1) $100 per new subscriber in CPE, (2) $3 per total basic cable subscriber in investments to upgrade service to broadband capability, and (3) $20 in maintenance investments per cable broadband subscriber. Morgan Stanley's $3 estimate of capital expenditures for upgrades is low because it is an average expenditure for *all* basic subscribers, not just those who are being upgraded. Using the estimates of basic subscribers and new homes passed, Morgan Stanley's estimates show that the cost to upgrade service is $213 per new home passed in 2009. This is the estimate we use for estimating the cost to upgrade cable for providing broadband service to a rural or underserved customer in 2009, and we assume that this cost declines by 5 percent each year.

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[3] Simon Flannery, Benjamin Swinburne, David Gober, Daniel Gaviria, & Chad Harris, Morgan Stanley, *Cable/Sat & Telecom Broadband Outlook: Online Usage Growth Favors Cable, DirecTV Remains HD Leader* (July 18, 2008), at Ex. 26.

[4] *Id.* at Ex. 23.

[5] Richard Bilotti, Benjamin Swinburne, & Megan Lynch, Morgan Stanley, *Truth, Lies and Truck Rolls: Understanding Product Profitability* 8 (Oct. 4, 2002).

21. To estimate the cost to deploy and serve a rural or underserved home with DSL, we use a Bear Stearns report that forecasts DSL deployment and CPE capital expenditures per new customer and DSL maintenance capital expenditures per existing customer through 2005.[6] After 2005, we assume that each line-item expenditure in Bear Stearns's capital expenditure forecasts decreases by 10 percent annually.

22. Additionally, Bear Stearns presents capital expenditure forecasts for two categories of customers: those located within 18,000 feet of a service provider's central office and those beyond 18,000 feet. The cost to deploy DSL to a customer beyond 18,000 feet is higher than the cost to deploy DSL to a customer within 18,000 feet. Because the deployments under the proposed expensing legislation would be made to rural and underserved areas, we use the higher deployment costs from the Bear Stearns report for customers beyond 18,000 feet of the service provider's central office when estimating increased capital expenditures in rural and underserved areas.

23. We estimated capital expenditures on DSL and cable broadband without the tax incentive by multiplying the various components of capital expenditures by the relevant factor—new homes passed, gross subscriber additions, or existing subscribers. In calculating gross subscriber additions, we assume that 75 percent of new fiber subscribers each year are former DSL subscribers and that 15 percent of new fiber subscribers each year are former cable broadband subscribers. Thus, the number of gross subscriber additions is equal to Morgan Stanley's forecasted net subscriber additions plus the number of DSL and cable broadband subscribers we assume switched to fiber.

24. Finally, our analysis required an assumption about the share of cable and DSL capital expenditures that would be eligible for the proposed tax incentive. We assume that all expenditures would meet the speed threshold. We assume that 63 percent of the forecasted cable and DSL capital expenditures would meet the rural and underserved area qualifications for 50 percent tax expensing. In earlier work by two of the authors of this study, we estimated the rural-underserved share of homes passed to apply to the total capital expenditures. We assumed that this share was equal to the percentage of households served by at least four broadband providers that reside in zip codes that are rural or underserved. To calculate this figure, we first classified zip codes as being rural or underserved if at least 50 percent of the Census tracts intersecting the

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[6] Robert Fagin, Bear Stearns, *Wireline Services: The DSL Report: Demystifying the Economics of Digital Subscriber Line*, Exhibit 6 (Sept. 2002). Our estimates differ from Bear Stearns in that we calculate maintenance capital expenditures per existing DSL subscriber in a year to be equal to 15 percent of the sum of deployment equipment, incremental bandwidth, and ATM switching capacity capital expenditures per newly deployed DSL customer in that year. This estimate of maintenance capital expenditures produces results that more closely match the DSL maintenance capital expenditures per line estimated by other analysts. *See, e.g.*, Douglas S. Shapiro, Banc of America Securities, *Broadband Brief: DSL Economics, Game Theory and What Happens to Broadband Pricing Next* 4 (Sept. 8, 2003). Banc of America estimates annual DSL maintenance capital expenditures per subscriber to be $46 in 2003 and $36 in 2008. Using our methodology and Bear Stearns's estimates of deployment capital expenditures, we estimate annual DSL maintenance capital expenditures per existing subscriber to be $42 in 2009.

boundaries of the zip code are classified as rural or underserved according to the definitions used in previous legislation that is consistent with the current proposal. We then matched these zip codes with June 2000 and June 2002 data from the FCC that shows the number of firms providing broadband service by zip code. We estimated that 18 percent of the households in zip codes that were served by at least four high-speed service providers were in rural or underserved zip codes in June 2000. We calculated that this share grew to 28 percent in June 2002—a 10-percentage-point increase over two years. Based on this increase, we assume that the share continued to increase by 5 percentage points each year. Therefore, we assume that, absent the tax incentive, 63 percent of capital expenditures on current generation technology in 2009 will be spent on deployments in rural and underserved areas, 68 percent will go to rural and underserved areas in 2010, and so forth. When capital expenditures increase as a result of the tax incentive, we assume that 100 percent of the additional DSL and cable customers and homes passed resulting from the tax incentive would be located in rural and underserved areas.

- **Multipliers**

25. The incremental residential broadband capital expenditures that result from these policies will have a multiplicative effect on the economy when the economy is at less than full employment, as it is today.[7] To estimate this multiplicative effect, we use the most recent RIMS II multipliers on detailed industries by NAICS code, based on 1997 national benchmark input-output data and 2006 regional data. Broadband deployment requires capital spending on equipment and construction. Therefore, we use multipliers for telephone apparatus manufacturing, fiber optic cable manufacturing, and construction. Table 2 shows the industry multipliers we use and the weights assigned to each industry to estimate the average multiplier for broadband investment.[8]

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[7] The multiplier is a standard principle in the macroeconomics literature. See, e.g., RUDIGER DORNBUSCH & STANLEY FISCHER, MACROECONOMICS 66 (McGraw Hill 6th ed. 1994). Richard Kahn first introduced the multiplier concept as an "employment multiplier." See Richard F. Kahn, *The Relation of Home Investment To Employment*, 41 ECON. J. 173, 173-98 (1931). John Maynard Keynes expanded upon this concept by introducing the "investment multiplier," which is the multiplier used in our analysis. *See* John Maynard Keynes, A GENERAL THEORY OF EMPLOYMENT, INTEREST, AND MONEY 115 (Harcourt Brace & Co. 1964) (1936).

[8] U.S. Department of Commerce, Bureau of Economic Analysis, Regional Input-Output Modeling System (RIMS II), Table 1.5 (2008). Multipliers are based on the 1997 Benchmark Input-Output Table for the Nation and 2006 regional data. These industries approximately match the expenditures made to deploy and connect broadband more closely than any other multiplier category. According to the 1997 NAICS definition, industry 334210 (Telephone apparatus manufacturing) consists of "[e]stablishments primarily engaged in manufacturing wire telephone and data communications equipment. These products may be standalone or board-level components of a larger system. Examples of products made by these establishments are central office switching equipment, cordless telephones (except cellular), PBX equipment, telephones, telephone answering machines, and data communications equipment, such as bridges, routers, and gateways." Industry 335921 (Fiber optic cable manufacturing) consists of "[e]stablishments primarily engaged in manufacturing insulated fiber-optic cable from purchased fiber-optic strand." Industry 230000 (Construction) includes, among other types of construction establishments, "[e]stablishments primarily responsible for the entire construction (i.e., new work, reconstruction, or repairs) of electric power and communication transmission lines and towers, radio and television transmitting/receiving towers, cable laying, and

TABLE 2: MULTIPLIERS FOR BROADBAND CAPITAL EXPENDITURES

| NAICS Industry | Final Demand: Output (GDP $ per Invested) | Final Demand: Employment (Jobs per Million $ Invested) | FTTH Industry Weight | Cable Industry Weight | DSL Industry Weight | Wireless Industry Weight |
|---|---|---|---|---|---|---|
| 334210 Telephone apparatus manufacturing | 2.6424 | 11.7592 | 30% | 80% | 80% | |
| 334220 Broadcast and wireless communications equipment | 2.8309 | 13.7828 | 0% | 0% | 0% | 93% |
| 335921 Fiber optic cable manufacturing | 3.0284 | 14.4066 | 20% | 0% | 0% | |
| 230000 Construction | 3.4617 | 26.6692 | 50% | 20% | 20% | 7% |
| **FTTH Weighted Average Multiplier** | **3.1293** | **19.7437** | | | | |
| **Cable Weighted Average Multiplier** | **2.8063** | **14.7412** | | | | |
| **DSL Weighted Average Multiplier** | **2.8063** | **14.7412** | | | | |
| **Wireless Weighted Average Multiplier** | **2.8739** | **14.6618** | | | | |

26. According to Uptown Services, a majority (54 percent) of capital spending required in outside plant build-out for FTTH is spent on construction.[9] This heavy reliance on construction for FTTH is due in large part to the burying of new infrastructure in the ground. Construction is given a larger weight for FTTH than for DSL, cable or wireless because much of the infrastructure over which cable (e.g., conduits and HFC cable), DSL (i.e., copper), and wireless (i.e., towers) already exists and does not require new construction. As Table 2 shows, the multipliers for the construction industry are substantially larger than the multipliers for the other three industries. For example, $1 million of investment in FTTH deployment will result in almost 20 jobs, whereas a dollar of investment in wireless broadband will result in fewer than 15 jobs.[10] This is largely due to our estimate that only 7 percent of wireless broadband capital expenditures go to the construction industry.[11]

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cable television lines; (2) establishments identified as power and communication transmission line construction management firms; and (3) establishments identified as special trade contractors engaged in activities primarily related to power and communication transmission line construction." Industry 334220 (Broadcast and wireless communications equipment) includes "establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment." *See* U.S. Census Bureau, 1997 NAICS and 1987 SIC Correspondence Tables, *available at* http://www.census.gov/epcd/www/naicstab.htm.

[9] Uptown Services, LLC, "Phase 2 Business Case for a Community Fiber Network, Prepared for the City of Portland by Uptown Services, LLC," Nov. 2007, at 25.

[10] The employment multipliers in Table 2 represent the effect of investments on jobs within the United States. As Table 2 shows, the employment multiplier for the construction industry is approximately twice as large as the multipliers for the other industries. This difference is due in large part to the concentration of construction jobs

27. The multiplier specific to the industries shown in Table 2 translates the effect of broadband capital spending on U.S. employment and gross domestic product (GDP). The multiplicative effect occurs because higher expenditures on broadband deployment—equivalent to higher demand for construction and the products of equipment manufacturers—causes the equipment manufacturers and construction firms to hire more employees to meet the increased demand. The equipment manufacturers' incomes and construction firms' incomes increase as well due to the increased expenditures, which, according to the consumption function, will increase their consumption as well. The increased consumption of equipment manufacturers and construction firms will in turn increase the income and employment of their suppliers. The income and employment of those suppliers will then increase, and so on.

28. Table 2 shows that a one-million dollar increase in the final demand for communications infrastructure investment by fiber broadband providers would create nearly 20 new jobs nationally. The timeframe over which employment would increase is debatable. In most cases, the BEA considers one year to be the appropriate time horizon for its multipliers to have achieved full effect.[12] Other economists have estimated that at least two years may be required for incremental investment to achieve its full impact on the economy.[13] The multiplier effect is most fully realized when there is substantial excess capacity, during economic recessions or sharp declines in specific sectors. Because the economy is in the midst of a recession,[14] excess capacity exists. Accordingly, our estimates of the multiplier effect of increased capital expenditures reasonably capture the effect that increased capital spending by broadband providers would have on the U.S. economy.

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within the United States relative to the other industries. For example, a dollar spent on telephone equipment may be spent in a factory overseas, resulting in an increase in foreign employment. Construction, on the other hand, is a local industry that requires U.S.-based workers to perform its essential functions. Therefore, a dollar spent on the construction industry will lead to more U.S. job growth than a dollar spent on other industries in which much of the main output is produced overseas.

[11] According to a report by the WiMax Forum, 7 percent of the 5-year capital expenditures on WiMax deployment in rural areas (the only areas in which WiMax would be eligible for any of the tax proposals we analyze) would be spent on "site acquisition and civil works." This component appears to be focused more on the construction industry, whereas the other components of capital expenditures in the WiMax report are focused on equipment such as CPE, base station equipment, and base station backhaul. WiMax Forum, *Business Case Models for Fixed Broadband Wireless Access based on WiMAX Technology and the 802.16 Standard* (Oct.10, 2004), at 20.

[12] U.S. DEPARTMENT OF COMMERCE, BUREAU OF ECONOMIC ANALYSIS, REGIONAL INPUT-OUTPUT MODELING SYSTEM REGIONAL MULTIPLIERS: A USER HANDBOOK FOR THE REGIONAL INPUT-OUTPUT MODELING SYSTEM (RIMS II), at 8 (Mar. 1997).

[13] *See, e.g.*, OLIVER BLANCHARD, MACROECONOMICS 72-73 (Prentice Hall 1997).

[14] In its December 2008 announcement that the current recession began in December 2007, the National Bureau of Economic Research noted that payroll employment had declined in ***every*** month since December 2007. *See* National Bureau of Economic Research, *Determination of the December 2007 Peak in Economic Activity*, *available at* http://www.nber.org/cycles/dec2008.html (Dec. 11, 2008).

- **Tax-Credit Bonds**

29. As discussed above, the tax-credit bond proposals we examine call for the Secretary of the Treasury to establish tax credits that allow the bonds to be sold at a zero coupon rate, i.e., providing the eligible borrowers with interest-free financing for the eligible projects. We assume that these terms are sufficiently attractive that the bonds would be utilized up to the specified limits, i.e., $10 billion annually for private tax-credit bonds and $1 billion annually for public tax-credit bonds. We assume that an equal amount of $10 billion in private sector tax-credit bonds are issued annually. Because public sector projects may take longer to begin than private sector projects, we assume that no public sector tax-credit bonds are issued in 2009, $1 billion is issued in 2010, and $2 billion is issued in 2011 (pursuant to the catch-up provisions of the tax proposal in which the $1 billion limit in public sector tax-credit bonds for a subsequent year is increased if the full amount of the bonds are not issued in a given year).

30. Further, because the proposal calls for the bonds to be used only to finance projects approved by state public utility commissions (for private bonds) and state governments and the U.S. Department of Commerce (for public bonds), we assume that 100 percent of the investment that results is incremental, i.e., used for projects that would not otherwise have been undertaken. Hence, we assume that the effect of both tax-credit bond proposals is to increase total investment in FTTH projects by an average of $11 billion annually for three years.

- **Other Assumptions**

31. Each expensing proposal lowers the after-tax cost of the goods and services purchased through broadband provider's capital investments. Under the 100 percent tax expensing proposal, expenditures are expensed completely in the year they are made. Without the expensing proposal, those expenditures would have been expensed over several years according to the appropriate depreciation schedule. To estimate the effective decrease in cost resulting from the tax expensing proposal, we estimate the net present value (NPV) of the forgone tax savings in future years for the broadband provider resulting from the immediate expensing of capital in year one under the proposal. We assume that the investment is 15-year depreciable property, and the taxpayer follows a half-year convention and applies a 150 percent declining balance depreciation method. Therefore, from a $100 investment, we deduct $5.00 for normal first year depreciation. This leaves $95 to be deducted under broadband expensing. We then determine the NPV of a $95 tax deduction, which we estimate at $33.25, assuming a 35 percent corporate tax rate. Next, we reduce $33.25 by the NPV of the year 2-15 depreciation deductions that would have been available in the absence of broadband expensing, equal to $18.17 (using a weighted average cost of capital (WACC) of 10 percent). Reducing $33.25 by $18.17, the remaining $15.08 would be the benefit of 100 percent broadband expensing, equating to 15.08 percent of the total investment. Using a similar calculation for the rural and underserved area tax incentive, the benefit of 50 percent broadband expensing would be 7.54 percent of the total investment.

32. To estimate changes in capital expenditures resulting from the lower after-tax cost of the products and services purchased by broadband providers due to the expensing proposals, we assume that the elasticity of the broadband providers' demand for those products and services is between -0.85 and -2.5. With an elasticity of demand of -0.85, a reduction in the broadband provider's cost of expenditures of 1 percent will increase its demand for those products and services by 0.85 percent. Likewise, an elasticity of -2.5 indicates that a reduction in the broadband provider's cost of expenditures of 1 percent will increase its demand for those products and services by 2.5 percent.

33. Finally, all of our estimates assume continuation of the current regulatory environment for broadband deployment and access. Any additional regulations, such as open access rules for FTTH, would decrease our estimates of broadband investments and their direct effects on economic output and employment.

## B. Direct Effects of 100/20 Mbps Expensing (100 percent)

34. Table 3 shows our estimates of the direct effect of increased capital expenditures in FTTH if the 100/20 Mbps broadband expensing proposal is implemented for 2009-2011.

TABLE 3: DIRECT ECONOMIC EFFECT OF 100/20 MBPS TAX EXPENSING PROPOSAL

| | 2009 | 2010 | 2011 | **Total** |
|---|---|---|---|---|
| FTTH Capital Expenditures before Tax Proposal ($Billion) | 4.031 | 4.314 | 4.651 | **12.996** |
| FTTH Capital Expenditures after Tax Proposal ($Billion) | 4.548 - 5.551 | 4.867 - 5.940 | 5.247 - 6.405 | **14.662 - 17.896** |
| Increase in Capital Expenditures ($Billion) | 0.517 - 1.520 | 0.553 - 1.627 | 0.596 - 1.754 | **1.666 - 4.900** |
| **Direct Effect on GDP ($Billion)** | 1.617 - 4.757 | 1.731 - 5.090 | 1.866 - 5.488 | **5.214 - 15.334** |
| **Direct Effect on Employment (Jobs)** | 10,204 - 30,012 | 10,919 - 32,114 | 11,772 - 34,624 | **10,965 - 32,250** |

35. As Table 3 shows, we estimate that the 100/20 Mbps expensing proposal will increase capital expenditures on FTTH by between $1.7 billion and $4.9 billion from 2009 to 2011. This increase will directly result in an increase in GDP of between $5.2 billion and $15.3 billion over the three years. On average over the three years, the increased investment will maintain an additional 10,965 to 32,250 jobs per year.

## C. Direct Effects of 5/1 Mbps Expensing (50 percent)

36. Table 4 shows our estimates of the direct effect of increased capital expenditures in FTTH if the 5/1 Mbps broadband expensing proposal is implemented for 2009-2011.

TABLE 4: DIRECT ECONOMIC EFFECT OF 5/1 MBPS TAX EXPENSING PROPOSAL

| | 2009 | 2010 | 2011 | **Total** |
|---|---|---|---|---|
| Cable/DSL Capital Expenditures before Tax Proposal ($Billion) | 3.076 | 2.931 | 2.619 | **8.626** |
| Cable/DSL Capital Expenditures after Tax Proposal ($Billion) | 3.200 - 3.441 | 3.059 - 3.307 | 2.742 - 2.980 | **9.001 - 9.728** |
| Increase in Capital Expenditures ($Billion) | 0.124 - 0.365 | 0.128 - 0.376 | 0.123 - 0.360 | **0.375 - 1.102** |
| **Direct Effect on GDP ($Billion)** | 0.349 - 1.025 | 0.359 - 1.054 | 0.344 - 1.012 | **1.051 - 3.091** |
| **Direct Effect on Employment (Jobs)** | 1,831 - 5,385 | 1,883 - 5,539 | 1,807 - 5,314 | **1,840 - 5,413** |

37. As Table 4 shows, we estimate that the 5/1 Mbps expensing proposal will increase capital expenditures on cable and DSL by between $375 million and $1.1 billion from 2009 to 2011. This increase will directly result in an increase in GDP of between $1.1 billion and $3.1 billion over the three years. On average over the three years, the increased investment will maintain an additional 1,840 to 5,413 jobs per year.

## D. Direct Effects of Private Sector Tax-Credit Bonds

38. Table 5 shows the direct effect on the economy of $10 billion in additional investment on FTTH each year from 2009 to 2011 that results from the proposed private sector tax-credit bonds.

TABLE 5: DIRECT ECONOMIC EFFECT OF PRIVATE SECTOR TAX-CREDIT BONDS

| | 2009 | 2010 | 2011 | **Total** |
|---|---|---|---|---|
| FTTH Capital Expenditures before Tax Proposal ($Billion) | 4.031 | 4.314 | 4.651 | **12.996** |
| FTTH Capital Expenditures after Tax Proposal ($Billion) | 14.031 | 14.314 | 14.651 | **42.996** |
| Increase in Capital Expenditures ($Billion) | 10.000 | 10.000 | 10.000 | **30.000** |
| **Direct Effect on GDP ($Billion)** | 31.293 | 31.293 | 31.293 | **93.878** |
| **Direct Effect on Employment (Jobs)** | 197,437 | 197,437 | 197,437 | **197,437** |

39. As Table 5 shows, we estimate that the private sector tax-credit bond proposal will increase capital expenditures on FTTH by $30 billion from 2009 to 2011. This increase will directly result in a $93.9 billion increase in GDP over the three years. On average over the three years, the increased investment will maintain an additional 197,437 jobs per year.

## E. Direct Effects of Public Sector Tax-Credit Bonds

40. Table 6 shows the direct effect on the economy of the additional investment on FTTH each year from 2009 to 2011 that results from the public sector tax-credit bonds.

TABLE 6: DIRECT ECONOMIC EFFECT OF PUBLIC SECTOR TAX-CREDIT BONDS

| | 2009 | 2010 | 2011 | **Total** |
|---|---|---|---|---|
| FTTH Capital Expenditures before Tax Proposal ($Billion) | 4.031 | 4.314 | 4.651 | **12.996** |
| FTTH Capital Expenditures after Tax Proposal ($Billion) | 4.031 | 5.314 | 6.651 | **15.996** |
| Increase in Capital Expenditures ($Billion) | 0.000 | 1.000 | 2.000 | **3.000** |
| **Direct Effect on GDP ($Billion)** | 0.000 | 3.129 | 6.259 | **9.388** |
| **Direct Effect on Employment (Jobs)** | 0 | 19,744 | 39,487 | **19,744** |

41. As Table 6 shows, we estimate that the public sector tax-credit bond proposal will increase capital expenditures on FTTH by $3 billion from 2009 to 2011. This increase will directly result in a $9.4 billion increase in GDP over the three years. On average over the three years, the increased investment will maintain an additional 19,744 jobs per year.

## V. IMPACT ON TAX REVENUES

42. The impact on tax revenues of the expensing proposals is dependent upon the change in investment and the change in the timing of expensing. When a firm incurs additional costs, it will be able to deduct those costs from its taxable income, thereby reducing the firm's tax liability. Although changes in the timing of expensing will reduce tax revenues in the short-run, (undiscounted) tax revenues over the life of the investment will be unchanged as long as the amount invested does not change, and assuming the firm's marginal tax rate remains constant over time.

43. We estimate the forgone tax revenues resulting from the proposed tax expensing incentives by calculating the annual tax savings each firm enjoys both with and without the incentive. A firm's tax savings in year $t$ ($tax_t$) from any investment originally made in year $k$ ($inv_k$) can be written as:

$$tax_t = \underbrace{(inv_k * taxrate_t * exp\_rate_{t=k})}_{(a)} + \underbrace{(inv_k * taxrate_t * (1 - exp\_rate_k) * dep\_rate_t)}_{(b)}$$

Part (a) represents the tax savings from an expensing rate of *exp_rate* in the year of the investment. Part (b) represents the tax savings from the depreciation schedule where $dep\_rate_t$ is the percent of the investment remaining after expensing that is depreciated in year $t$. With no tax incentives, the expensing $exp\_rate_k$ rates is zero. With the 100 percent expensing proposal, $inv_k$ increases (relative to no tax incentive) and $exp\_rate_k$ is 100 percent. With the 50 percent expensing proposal, $inv_k$ increases (relative to no tax incentive) and $exp\_rate_k$ is 50 percent. We assume a 35 percent marginal tax rate $taxrate_t$ when estimating the tax revenue impact.

44. The forgone tax revenues resulting from the tax-credit bond proposals are functions of interest rates and tax rates. The effective interest rate on private borrowings under the tax-credit bond proposal will reflect two factors. First, since interest on the bonds will effectively be paid by the U.S. Treasury (in the form of tax credits), the default risk on the interest component is effectively zero. Second, the default risk on the principal will be a function of the risk characteristics of the issuers, which may range from major U.S. corporations to smaller (and hence riskier) companies. For purposes of arriving at an estimate of the forgone tax revenues, we assume that these two factors result in an effective interest rate of 4.14 percent, equal to the average of the current yield for 10-year (5.5 percent) and 20-year (5.98 percent) A-rated corporate bonds and the current yield for 10-year (2.16 percent) and 20-year (2.92 percent) Treasury bonds.[15] The forgone tax revenues in each year until maturity resulting from the private tax-credit bond proposal is equal to the effective interest rate multiplied by the amount issued.

45. The effective interest rate on public borrowings under the tax-credit bond proposal will reflect two factors. First, since interest on the bonds will effectively be paid by the U.S. Treasury (in the form of tax credits), the default risk on the interest component is effectively zero. Second, the default risk on the principal is a function of the risk characteristics of the issuers, which may range from state governments to local municipalities. For purposes of arriving at an estimate of the forgone tax revenues, we assume that these two factors result in an effective interest rate of 3.94 percent, equal to the average of the current yields on 10-year (4.81 percent) and 20-year (5.87 percent) A-rated municipal bonds and the current 10-year (2.16 percent) and 20-year (2.92 percent) Treasury yields as of December 22, 2008.[16] The forgone tax revenues in each year until maturity resulting from the public tax-credit bond proposal is equal to the effective interest rate multiplied by the amount issued.

46. Table 7 shows the estimates of forgone tax revenues resulting from the tax incentives and changes in capital expenditures. Table 7 shows both the impact on tax revenues from 2009-2011 and the impact on revenues over the entire life of the investments made in 2009-2011.[17] Following the Joint Committee on Taxation, we do not discount the tax revenue cost of the proposals.[18]

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[15] Yahoo! Finance, Composite Bond Rates (http://finance.yahoo.com/bonds/composite_bond_rates); Federal Reserve Board, Federal Reserve Statistical Release H.15, Selected Interest Rates (http://www.federalreserve.gov/releases/h15/data.htm). Rates as of December 22, 2008.

[16] *Id.*

[17] For tax-credit bonds, we calculate forgone tax revenues based on the Joint Committee on Taxation's usual method of estimating tax effects over a ten-year budget window, rather than the entire life of the bonds.

[18] Joint Committee on Taxation, *Overview of Revenue Estimating Procedures and Methodologies Used by the Staff of the Joint Committee on Taxation* (Feb. 2, 2005), at 12 (http://www.house.gov/jct/x-1-05.pdf).

TABLE 7: IMPACT OF TAX INCENTIVE PROPOSALS ON TAX REVENUES ($BILLIONS)

| Proposal | 2009-2011 Tax Revenue Reduction | Tax Revenue Reduction over Entire 15-Year Life of 2009-2011 Investments* |
|---|---|---|
| 100% Expensing for 100/20 Mbps | 4.506 - 5.638 | 0.583 - 1.715 |
| 50% Expensing for 5/1 Mbps (Rural/ Underserved Areas only) | 1.363 - 1.508 | 0.131 - 0.386 |
| Private Sector Tax-Credit Bonds | 2.484 | 11.178 |
| Public Sector Tax-Credit Bonds | 0.158 | 0.985 |

* Forgone revenues in this column for tax-credit bonds represent interest payments over ten years from 2009-2018.

47. As Table 7 shows, the proposed 100 percent expensing proposal's effect on increased capital expenditures reduces 2009-2011 tax revenues by between $4.5 billion and $5.6 billion. The effect over the entire life of the increased investments made in 2009-2011 is between $583 million and $1.7 billion for the 100 percent expensing proposal. The effect over the entire life of the investments is smaller than the effect over 2009 to 2011 because the Treasury receives more in tax revenues in the years after 2011 under 100 percent expensing than it does without 100 percent expensing. When 100 percent of an investment is expensed in the first year, there will be no more investment to deduct from future years earnings. Without 100 percent expensing, there are depreciated costs to deduct from earnings in every year through year 16 of the investment.

48. By focusing only on firms' increased expenses, Table 7 overstates the true net impact of the various tax proposals on tax revenues. We do not attempt to estimate the *increase* in tax revenues that would result from the tax incentives in our analysis. For example, increased employment through the direct effects would result in increased personal incomes, which would result in increased income tax revenues. In addition, firms making the investments would see their profits increase through greater consumption of their broadband services, which would increase their corporate income taxes. The Joint Committee on Taxation (JCT) recently estimated the combined cost of the 100/20 Mbps expensing provision and the 5/1 Mbps expensing provision to be $72 million over ten years for a three-year provision. In making its revenue impact calculations, the JCT generally accounts for income effects and other indirect effects (discussed below) not included in Table 7 that increase tax revenues.

## VI. ANALYSIS OF INDIRECT EFFECTS

49. This study focuses on the direct effects on the economy of each tax proposal. In addition to these direct effects, the additional availability of broadband services will result in increased adoption, which in turn will lead to increased productivity and demand for other goods and services ("indirect effect"). The indirect effects of increased broadband investment result from the productivity increases, price reductions, and related savings associated with increased broadband adoption. The tax incentives at issue here would increase broadband adoption due to both (a) increased broadband availability in rural and underserved areas and (b) reduced prices and improved quality associated with the availability of more technologically advanced broadband infrastructures generally. Our estimate utilizes reasonable assumptions regarding the

impact of increased availability, and applies the results of authoritative empirical research on the impact of broadband adoption on employment to estimate these indirect effects. In this section, we estimate the indirect effects from increased broadband adoption resulting from the increased deployment that broadband providers will make as a result of the tax proposals discussed above.

## A. Methodology and Assumptions

50. In our analysis of the direct effects of the tax proposals, we estimated the effects of each proposal that result directly from increased investment in broadband infrastructure. The ultimate effect of this investment, however, will be to increase the availability of next-generation broadband services to households which already have some form of broadband available, and to make broadband available in rural and underserved areas where broadband service is unavailable today.

51. We model the adoption effect of increased high-speed broadband (100/20Mpbs) as an effective reduction in the price, where price is measured as the monthly cost per downstream megabit.[19] As shown in Table 8 below, the price per megabit for high speed services is far lower than for slower DSL and cable connections.

TABLE 8: COMPARISON OF BROADBAND SPEEDS AND PRICES

| Provider | Service Type | Download Speed | Monthly Price | $/Mbps |
|---|---|---|---|---|
| Cox | Cable | 768 Kbps | $19.89 | $25.90 |
| Verizon | DSL | 768 Kbps | $19.99 | $26.03 |
| Qwest | DSL | 1.5 Mbps | $14.99 | $9.99 |
| AT&T | DSL | 1.5 Mbps | $25.00 | $16.67 |
| Cox | Cable | 1.5 Mbps | $29.99 | $19.99 |
| AT&T | DSL | 3.0 Mbps | $29.95 | $9.98 |
| Verizon | DSL | 3.0 Mbps | $29.99 | $10.00 |
| AT&T | DSL | 6.0 Mbps | $35.00 | $5.83 |
| Comcast | Cable | 6.0 Mbps | $57.95 | $9.66 |
| Qwest | DSL | 7.0 Mbps | $24.99 | $3.57 |
| Comcast | Cable | 8.0 Mbps | $67.95 | $8.49 |
| Cox | Cable | 9.0 Mbps | $43.99 | $4.89 |
| Verizon | FiOS | 10 Mbps | $47.99 | $4.80 |
| EarthLink | Cable | 10 Mbps | $72.95 | $7.30 |
| Qwest | DSL | 12 Mbps | $46.99 | $3.92 |
| Cox | Cable | 15 Mbps | $56.95 | $3.80 |
| Verizon | FiOS | 20 Mbps | $57.99 | $2.90 |
| Verizon | FiOS | 50 Mbps | $144.95 | $2.90 |

Source: Company websites.

[19] Price per megabit is a widely utilized measure of broadband pricing, since it captures the "quality" element associated with higher speed services. See, e.g., http://www.oecd.org/sti/ict/broadband.

52. We estimate conservatively that the effect of 100/20 Mbps fiber deployment in an area already served by broadband is to reduce the average price of broadband in that area by $3.67 per month per megabit, i.e., approximately the difference between an average of the current pricing plans for 3 Mbps – 15 Mbps ($6.57/Mbps/month) and Verizon's current 50 Mbps plan ($2.90/Mbps/month).

53. To estimate the effect of reduced prices on broadband penetration in these areas, we rely on Atkinson, *et al*, who find that a $1/month reduction in price per megabit increases broadband penetration by 2.4 percentage points.[20] We assume the full effect of reduced prices would be felt over four years, beginning once the deployment has been made (i.e., at the end of each year). Thus, a $3.67 reduction in price/Mbps would result in an 8.81 percentage point increase in broadband penetration by the end of the third year of our projection period.[21]

54. The impact of increased availability of any type of broadband can be estimated more directly. According to Morgan Stanley, the national residential broadband penetration rate is approximately 56 percent of all households as of 2009, and is forecasted to increase to 61.1 percent as of 2011.[22] We assume that households who receive broadband availability as a result of the rural/underserved tax expensing proposal will begin subscribing to broadband in the year following deployment, and that once subscriptions begin, they will subscribe to broadband at the national average rate over the course of three years, i.e., that 20 percent of households will subscribe in the first year, 40 percent in the second year, and 60 percent in the third year. Under this assumption, 20 percent of all homes passed by broadband for the first time as a result of the rural/underserved tax expensing proposal would be subscribers as of 2011. In addition, we assume that 10 percent of all homes passed by fiber as a result of the various 100/20 Mbps proposals would be located in areas that would not have broadband availability without the expanded fiber deployment. Therefore, we assume that 20 percent of those newly passed homes become broadband subscribers by the end of 2011.

55. Finally, to estimate the impact of increased broadband penetration on employment, we rely on the results of a 2007 study published by the Brookings Institution. In that study, Robert Crandall, William Lehr and Robert Litan found that a one percentage point increase in broadband population penetration (defined as broadband lines per person) will

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[20] Robert D. Atkinson, Daniel K. Correa, and Julie A. Hedlund, *Explaining International Broadband Leadership*, Information Technology and Innovation Foundation (May 2008)

[21] For example, if the number of households passed by FTTH increased by 1,000 as a result of one of the proposals we examined, we estimate that 88.1 additional households become subscribers during the period of our projection.

[22] Simon Flannery, Benjamin Swinburne, David Gober, Daniel Gaviria, & Chad Harris, Morgan Stanley, *Cable/Sat & Telecom Broadband Outlook: Online Usage Growth Favors Cable, DirecTV Remains HD Leader* (July 18, 2008), at Ex. 26.

increase private, nonfarm employment by 293,200 jobs (when the economy is not at full employment).[23]

## B. Results of Indirect Effects Analysis

56. Table 9 shows the results of our analysis of the effects of each proposal on broadband adoption, and the resulting indirect economic effects on job creation. Specifically, we find that the various proposals would increase the number of U.S. broadband subscribers by between 268,800 and 3.39 million, increase the U.S. broadband penetration rate (defined as broadband subscriber lines per person) by between 0.09 percent and 1.08 percent, and increase employment by between 25,160 jobs and 317,000 jobs.

TABLE 9: SUMMARY OF INDIRECT EFFECTS ON JOBS CREATION, 2009-2011

| | 100% Expensing for 100/20 Mbps | 50% Expensing for 5/1 Mbps (Rural/Underserved Areas only) | Private Sector Tax-Credit Bonds | Public Sector Tax Tax-credit Bonds |
|---|---|---|---|---|
| **Additional Homes Passed (000)** | | | | |
| – Fiber | 2,995.1 - 6,552.5 | - | 34,114.2 | 4,523.5 |
| – Any Broadband | 299.5 - 655.3 | 1,343.9 - 3,952.7 | 3,411.4 | 452.4 |
| **Additional Subscribers (000)** | | | | |
| – Fiber | 297.3 - 650.5 | - | 3,386.6 | 449.1 |
| – Any Broadband | 297.3 - 650.5 | 268.8 - 790.5 | 3,386.6 | 449.1 |
| **Increase in Overall U.S. Broadband Population Penetration Rate**[24] | 0.09% - 0.21% | 0.09% - 0.25% | 1.08% | 0.14% |
| **Additional Jobs** | **27,831 - 60,888** | **25,160 - 73,999** | **317,000** | **42,034** |

## VII. CONCLUSION

57. In this study, we have calculated the total economic impact of four different tax incentive proposals relating to increasing broadband deployment and adoption. We find that each of the four proposals generates substantial benefits to the U.S. economy through both increased GDP and increased employment. Each of the tax proposals would directly result in thousands of additional jobs sustained per year from 2009 to 2011. The number of new jobs sustained from 2009 to 2011 resulting directly from the private sector tax-credit bond proposal *alone* is as high

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[23] Robert Crandall, William Lehr, & Robert Litan, *The Effects of Broadband Deployment on Output & Employment: A Cross Sectional Analysis of U.S. Data*, 6 ISSUES IN ECONOMIC POLICY 12-14 (July 2007).

[24] Based on Morgan Stanley's baseline forecast of 75.156 million residential broadband subscribers in 2011 and the U.S. Census Bureau's U.S. population forecast of 313.2 million in 2011. Simon Flannery, Benjamin Swinburne, David Gober, Daniel Gaviria, & Chad Harris, Morgan Stanley, *Cable/Sat & Telecom Broadband Outlook: Online Usage Growth Favors Cable, DirecTV Remains HD Leader* (July 18, 2008), at Ex. 26; U.S. Census Bureau, U.S. Population Projections, National Population Projections (Released 2008) (http://www.census.gov/population/www/projections/downloadablefiles.html).

as 197,437. These proposals result in even further job creation through their indirect effect of increased broadband adoption. Given these proposals' relatively small impact on tax revenues compared to the large resulting increases in GDP and employment, their long-run benefits in increasing productivity and competitiveness, and their significant and virtually immediate impact on economic activity,[25] the adoption of any of these proposals would create substantial net benefits to the U.S. economy.

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[25] For a discussion of the importance of timing in the effectiveness of fiscal stimulus policies, see Peter R. Orszag, *Options for Responding to Short-Term Economic Weakness,* Testimony Before the Committee on Finance, United States Senate (January 22, 2008), especially at 5 ("The timing of fiscal stimulus is critical. If the policies do not generate additional spending when the economy is in a phase of very slow growth or a recession, they will provide little help to the economy when it is needed.") and at 8 ("Tax cuts for business investment may be more effective in boosting short-term demand if they are temporary than if they are permanent. Firms may view them as one-time opportunities for tax savings, which may induce firms to move up some of their future investment plans to the present.")